

INVESTMENT ANALYSIS

.



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Investment Analysis

FUNDAMENTALS IN THE ANALYSIS OF
INVESTMENT SECURITIES

BY

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TO MY FRIEND AND FORMER TEACHER,
IRVING FISHER

PREFACE

Numerous difficulties lie before the writer of a book on any business subject. Particularly is this true in the field of investments, where many mooted points exist, and lack of standardization in many security issues still prevails. Every investment is an individual problem. Consequently to apply a standard form of analysis, and at the same time allow sufficient elasticity in treatment for the qualifications which must be constantly made in practice, places a large task upon the author. There is also no business subject in which one is forced to deal with the technical aspects of so many subjects. Some will doubtless criticize the present text, because of its large inclusions from the fields of corporation finance, accounting, law, banking, and engineering. Though every author would draw from all of these fields in varying degree, no author undertaking a complete analysis of investment securities would eliminate any one of them.

With so many complexities involved, the author may conceive his task too ambitiously and unconsciously sacrifice clearness and simplicity of plan which are so essential in the exposition of a large subject. In the attempt to be thorough and scientific, the author's treatment of the subject may be so complex that the expert alone can follow it. On the other hand, the author may be misled into a superficial treatment and fail to establish a foundation upon which the student may build in the future. Whether this book has succeeded in evading these dangers or not, the author has prepared it with the full realization of these difficulties.

An effort has been made to state the fundamentals of analysis of investment securities in such form that they will be understandable to an intelligent person who has not made a systematic study of investments. While the book has been written for beginners, no attempt has been made to avoid close

and difficult analysis, where it has been essential to make a complete presentation of a particular subject. Neither is it possible to make all things, in such a complicated subject, of "primer-simplicity"—and the author makes no such claim. Any one who avoids close reasoning in the study of investments can never hope to have anything but a superficial knowledge of the subject—and this is too frequently an erroneous understanding.

While most of the material in this book has been gained from practical experience and investigations in bond and banking houses, the method of exposition has developed out of several years of experience in teaching the subject-matter to both college students and business men. The method which experience has shown to be the best adapted to these men, has seemed to the author to be the logical method of presentation. Books Two, Three and Four of the volume, assume an understanding of the material covered in Book One. To avoid constant repetition, this has been necessary, so that the reader should not draw the conclusion that some important general principle or condition has been omitted if he first reads chapters subsequent to Book One. While there are many miscellaneous facts, which it is hoped will be found useful and can be found through reference to the Table of Contents and the Index, the various parts of the book have been closely interwoven. For convenient reference of facts a very complete index has been made, and for the same purpose the various kinds of bonds have been alphabetically catalogued in the Appendix. No pretense has been made to make the bibliography exhaustive, though the claim can be made that it is representative in all respects.

Because of the meagre amount of material available on some securities, the chapters cannot be evenly balanced either in scope or character of treatment. Some topics, especially in closely allied fields, have already been so fully covered that a brief treatment has seemed quite sufficient. Lack of uniformity and standardization in other issues, make other than general conclusions impractical. While the author has been fully conscious of the exceptions, which must constantly be made in any attempt at standardization in the analysis of industrial securi-

ties, an attempt has been made to treat the more basic rules of analysis applying to these securities.

Though a discussion of telegraph, telephone and electric light company bonds also has been ventured, an analysis of these is rather difficult, as they have just passed through their initial development, added to which they possess in common with industrial securities, a lack of uniformity. In railroad finance, uniform standardization has long been well established. The constitutional and statutory regulations which control the issuance of civil obligation have established a fairly close uniformity thus making classification and analysis possible. There is, however, much still to be done in this field. It is surprising that with the wealth of material which has so long been available in the *Commercial and Financial Chronicle* that so little real original and constructive work has been done in the subject of municipal finance. Of such securities as irrigation, timber, etc., bonds, a briefer treatment might seem warranted than that given here. However, their unfortunate early experiences and the lessons a study of them contributes, would seem to justify the space given to their discussion. The discussion of steamship bonds is confined to the Great Lake Steamship bonds. While there are particular ocean steamship bonds which belong in the investment group, the lack of uniformity in these issues, does not seem to yet justify their inclusion.

Stocks, as such, have not been specifically treated. To have done so would have necessitated a considerable enlargement of the volume which is already large. As for the evaluation of corporation stocks, the author believes that the discussions in this volume apply equally to stocks and bonds, though such particular things as preferred stock regulations are not considered. But here again, the value of those regulations to the investor is wholly dependent upon the financial strength of the corporation. Other suggestions, as to method of treatment, or inclusion, or exclusion of other securities do not seem to demand further discussion.

Whatever may be contributed in this book in the furtherance of an understanding of the reader in the field of investments, can in a very small measure be credited to the author. There

are many persons both in the "give and take" of office contact and in seemingly endless conferences who are contributors to this volume. To all these people it is not possible to give public acknowledgment.

To those who have read parts of the manuscript and offered valuable suggestions, I desire to express my indebtedness, though space does not permit a detailed explanation of their readings, as the list itself is long. Though the author is responsible for the decision upon all disputed points and errors, he has attempted to secure the advice and suggestions of experts upon every kind of security. Particular acknowledgments are made to: Mr. H. W. Addinsell of Harris, Forbes & Co., New York City; Mr. Arthur Andersen of Andersen & Co., Chicago, and head of the Accounting Department of Northwestern University; Mr. H. S. Allen of Spencer, Trask & Co., New York City; Mr. John Bauer of the Corporation Counsel Office of New York City, and Consulting Tax and Public Utility Expert; Professor Alfred Bays of Northwestern University School of Commerce and Practicing Attorney; Mr. H. H. Beebe of Harris, Forbes & Co., New York City; Mr. Earnest D. Brooks, Asst. Manager of Sales of Continental and Commercial Trust and Savings Bank, Bond Department, Chicago; Mr. Clinton Colver of Lyman D. Smith & Co., New York City; Mr. C. F. Childs of C. F. Childs & Co., Chicago; Mr. William R. Compton of William R. Compton and Company, St. Louis; Professor George Bion Denton of Northwestern University; Mr. Louis B. Ferguson, Manager of Sales, Bond Department of the Continental and Commercial Trust & Savings Bank, Chicago; Mr. J. E. Ferris of Ferris & Hardgrove, Spokane, Washington; Professor Stephen Gillman of Wisconsin University; Mr. George A. Hurd, President of the Mortgage Bond Company, New York City; Professor E. W. Kemmerer of Princeton University; Professor Elmer Martin Leesman of Northwestern University Law School and Practicing Attorney; Mr. F. J. Lisman of F. J. Lisman and Company, New York City; Mr. Robert Mallory of Spencer Trask and Company, New York City; Mr. Lester H. Monks of W. A. Harriman and Company, New York City; Professor E. J. Moulton of Northwestern University; Mr. Roy C. Osgood,

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BOOK I

GENERAL FUNDAMENTALS AND THEIR
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CHAPTER I

INTRODUCTION—THE MEANING OF INVESTMENTS

It may seem like a contradiction to begin a book on investments by recommending that the investor first and last seek the advice of an investment banking house. "Why bother," the reader asks, "to obtain an understanding of security values, if in the end the advice of the investment banker must be sought?" It is only when the investor has a full appreciation of the requirements of sound investments that he will always seek the advice of his banker, and then follow this advice when given. The investment banker who judiciously attempts to meet the particular needs of every client can best appreciate this fact. After the most conscientious and discriminating explanation of the advantages a certain security possesses for a particular client, the banker may find his recommendation thrown aside, because his client has over-emphasized insignificant factors. Such errors are the result of an ignorance of security values and not the result of an excessive knowledge of investments. The investor who really knows the factors that are essential, also best realizes his own limitations. Contrary to the belief of many that there is a decreasing need of the banker who is a real expert, there will be an increasing demand for his services as a general understanding of the fundamentals of investment increases. The service that he renders to his clientele will be of more specific value and his advice will also be followed more closely.

Regardless of how proficient the investor may become in analyzing investment data, he must secure the larger part of his material from his banker, for the information of the banker who offers the securities for sale should be the more reliable. Further, it is not only unprofitable, but impossible, for the average investor to pay for the organization necessary to gather

the facts for the detailed examination necessary to determine the value of any particular security. The investment banker, on the other hand, who has continual need of this service, can afford to maintain a staff of experts to gather data.

Naturally, this reliance which must be placed in the investment banker's judgment and the facts which he gives, necessitates a careful selection of a banker on the part of the investor. There is a small number of bankers who, though honest, do not have the knowledge and experience necessary to make the rigid analysis essential for determining the value of investments; and as a result often offer highly speculative securities as investments. Lastly there is even a smaller class of so-called bankers who, because of the ease with which securities of doubtful repute can be sold under the blind of a well-worded prospectus, are able to sell their securities to the uninitiated. And further, because of this, the importance of the selection of a well-known, reputable investment banker becomes all the more evident. In the correction of questionable practices of the latter class, the Investment Bankers' Association has done a great deal and it will become increasingly strong in its control.¹ Experience has shown that no control is so effective as the voluntary control of an organization itself, when that organization represents wide and diversified interests.

The great pioneering period with its attendant stimulus to speculation is passing, and we are settling into the slower growth of the established community. Keener competition, greater efficiency in organization, increasing regulation, and the larger compensation demanded by labor—all a direct result of this change—are forcing greater care and skill in the organization of new industries. A few exceptions will probably always exist, but they will not be found among the corporations whose securities are included in the so-called investment class. More and more, conditions are compelling the investor also to recognize the necessity of a more careful study of facts. The

¹Commendation also should be made of the efforts of the Investment Bankers' Association in educating its own members along technical lines. The work which this Association is doing in this regard is not fully appreciated outside the Association itself, though it will prove, eventually, to be among the most effective and permanent of its efforts.

prospective purchaser of investment securities is no longer content with only the promise of a rhetorical prospectus as a basis for determining the value of his investments. He has come to appreciate that there are underlying causes for the continued stability and large earnings of a corporation.

Before passing on to the discussion of the meaning of investments, two things need to be particularly emphasized to the beginning student of investment securities. First, in all sciences, the analysis must begin with the underlying or basic phenomena before proceeding to the variations. Secondly, almost every analysis of an investment security necessitates some variation in the application of the principles. This is a fact which is commonly ignored. While every analysis must begin with fundamentals, no treatise on science can give a complete set of rules which will measure everything with finality. Not even the much older and more exact science of engineering ever attempted to do this. And only long experience and constant study can give skill and astuteness in the application of these principles. The mistake, as previously stated, is that beginners often painfully attempt to apply to all securities the same rigid "rule of thumb" measurement. Most often this mistake is due to the beginner's lack of understanding of the principle. Practical problems are continually changing; no "rule of thumb" can be used offhand to decide them, though the starting point for the development of the most complicated analysis is the fundamental principle.

As in all subjects in the field of applied economics or business, considerable information has been acquired by the beginner from one source or another. With the majority, this information has not been subjected to any classification in accordance with the relative importance of facts. Consequently, many cleverly worded explanations, based upon statistical evidence and juggled to meet present needs, are accepted as truth, or more often conclusions are made which were never intended by the seller of the securities. Ignorance of the essentials in the analysis of securities also frequently leads to a disregard of the most vital material. The reader who has acquired these habits of loose reasoning is, of course, in

more need of close observation of his conclusions on investment values than the beginner who has no preconceived ideas on the subject. One of the most difficult things for the American student whose knowledge of any applied subject in business has been acquired in this haphazard way and without direction, is to begin with the fundamentals. Where the previous information and viewpoint of a student have been developed under a sound system of methodology, incomplete as his information may be, it must serve as a very valuable aid in a study of any of the applied subjects of economics. What is considered here must not, however, be taken as a substitute for actual experience. No far-reaching grasp of investment problems can be acquired until experience has taught the investor the true appreciation of the correct application of principles.

To establish sound and careful thinking, it is, of course, necessary to proceed first from the simplest and most exact investment and its underlying principles, to the broader application of these principles. No teacher, in expounding the laws of supply and demand in their simplest form—namely, a purely competitive state—ever considers concluding his exposition at that point. On the other hand, any student of economics in the future who desires to have a clear understanding of supply and demand must thoroughly comprehend their fundamentals, regardless of how few prices under non-regulation conform to the law for price-fixing or how many prices are controlled by the government.

Few securities absolutely conform to the fundamental principles of investments laid down in the succeeding chapter. Once, then, the principles are established, there seems to be no more purpose in confining any discussion of investments to securities that rigidly conform to all requirements, than there is in confining a discussion of the laws of supply and demand to a purely competitive régime. While some of the first rank bonds comply more fully than any other type of security with the ideal standards of investment, there are other securities which, although they do not possess all the requirements of an ideal investment, are more desirable than some bonds. It is with this practical viewpoint of sound investments that this volume is concerned.

What the Field of Investments Includes.—It is not always an easy task to give a comprehensive definition at the beginning of a treatise. Any statement of the premises of a subject, and particularly in the field of economics, is always better understood when the subject-matter has been covered and a perspective viewpoint obtained. What the field of investments includes can probably be best stated by distinguishing it from speculation, for speculation is frequently confused with investments.

The most fundamental distinction between investment and speculation rests in the difference in the purpose of the purchase. The investor buys to procure the income from the principal, while the speculator buys to secure the profits that may accrue in a realized appreciation of the principal. In order for an investment to be assured of a continued income, danger of all losses or any considerable fluctuation in value of a security must be eliminated. This requirement establishes the second distinction between investment and speculation. Investment minimizes risk; speculation emphasizes risk. Greater risks are essential to the latter, if profits are to be procured from a fluctuation of security prices. It is true that risk is always present in a varying degree and the distinction between these different risks often is correspondingly more or less arbitrary—though in the search for an investment, the constant effort is to eliminate the risk. The speculator, on the other hand, is always consciously assuming risk, and his studied efforts are to take advantage of what he concludes to be the final effect of the risk on the price of the security.

The speculator is interested only in the temporary success of the income yield which will force a change in prices, while the investor must be assured of the future permanency of this income. The greater the assurance that the income will remain fairly constant and permanent, the less chance will there be for quick speculative turnovers. To the degree that the latter holds true, the security will be less desirable to the speculator wanting large speculative gains. The evidence of this is shown in the small amount of speculation in the best investment bonds, except during periods of business depression. The most successful speculator, however, is one who has the keenest understanding of possible investment values as well as of the external

movements of the market. With this knowledge he is able to analyze the more accurately all causes that may temporarily change the trend of security prices. On the other hand, it does not follow that a shrewd investor may not be a clever speculator.

The distinction, as is now well seen, cannot be made iron-clad. No one has been able—and probably no one, with the most accurately worded definition, will ever be able—to draw a hard and fast distinction between investment and speculation. Despite this border line between the two, there is a demarcation outside of this line, which any one with a complete understanding of investment principles does not fail to recognize. For all practical purposes this is quite sufficient.

The Scope and Limitations of This Study.—It is only in the last two decades that any serious attempt has been made to formulate and draw up the principles of investment. In the three or four books published in this period which have attempted a scientific treatment, the method of approach has differed materially. To a degree this must always be true in any subject, although, as principles become well formulated, there will not be a very wide difference in the method. Both the functional and the topical method of analysis have been used in this text and the author has arbitrarily passed from one method to the other, as seemed best suited to the simplest and most adequate treatment of each particular subject.

The subject-matter of the text has been grouped into the four main divisions: (1) General Fundamentals in the Analysis of Securities; (2) Corporation Securities; (3) Securities Dependent Primarily on Land and Real Estate, and (4) Civil Loans. The functional form of analysis has been followed in numbers one and four of these divisions with the exception of the last two chapters in division four. In divisions two and three because of the great differences existing between the various types of securities, the logical treatment seems to call for the topical method of analysis. While Civil Loans, comprising division four, might be treated by the topical method based upon the various classes of the political divisions, the avoidance of a great amount of duplication where the same principles apply to all classes of civil loans has been accomplished by the

functional treatment. This, consequently, seems the most consistent method of approach for the beginner. Though certain details may vary, the principles of valuation, tax rates, debt limitations, etc., are the same whether applied to state bonds, city bonds, or other types. Because of the greater simplicity of treatment, all of the subject-matter applying to investments in general has been placed under the first group of topics.

Under the first main division of the book, the General Fundamentals in the Analysis of Securities are treated. Firstly, the now generally accepted principles which govern a sound investment are presented. Secondly, a complete classification of bonds and mortgages has been made to show that securities are issued for different purposes, and have different maturity dates, interest rates and liens, different claims against a property, and different relations to other claims. This reduces to as simple a working basis as possible, the several hundred different kinds of instruments. Thirdly, two chapters present the more important phases of the corporation report. Fourthly, the mortgage which underlies the bond is outlined in considerable detail, setting forth the essentials necessary for the complete protection of the bondholder. This is followed by a general brief upon the negotiation, issuance, assignment and transfer of securities. Sixthly, two chapters are devoted to a study of the market. In these chapters are discussed such topics as bank loans, interest rates, rising and falling prices, etc., and their effect upon security prices. Seventhly, one chapter is devoted to the regulation of security issues and one to taxation.

The second division, comprising Corporation Loans, treats of the various types of Corporation bonds. They are divided and discussed in the following order: railroads (three chapters), railroad equipment, street railway and interurban, electric light and power, hydro-electric power, gas, private water companies, steamship, industrial and timber securities.

The securities under the third division which have their main security dependent upon land are likewise treated as corporation loans. The importance of land or real estate and the problems peculiar to this form of security seem to warrant this separation. In this division are included: real estate mort-

gages, real estate bonds, farm mortgages, irrigation bonds and levee and drainage bonds. As the majority of the two latter types of securities are issued by municipal district organizations, they might well be classed under the division of Civil Loans. But again the peculiar character of the security of these bonds seems to justify this division.

Civil Loans, the third and the last of the main divisions of the book, includes the study of the United States, state, county, city, town, special assessment and other forms of special civil loan bonds. Because of the importance of the European loans which have occupied a prominent place in the investments of this country since 1914, a chapter has been included on these securities, the conclusion of which deals with those conditions that will particularly affect the holder of foreign securities. As stated above, with the exception of the discussion of the United States bonds, the functional treatment of civil loans seems to offer the most comprehensive method of approach to an understanding of these securities. The preponderant emphasis which must necessarily be placed on the legal aspects of these securities quite separates them from corporate loans. While income safety requirements, etc., must be given the same importance, the emphasis and the method of approach are quite different from those employed in the discussion of corporate loans. The information contained in these pages is what the counsel of a conservative bond house would use as the basis for the analysis of these securities. No attempt has been made to go into all the legal ramifications and details which it is necessary for the attorney to know, but all the fundamental principles upon which the attorney must build his legal decision and his completed report are included.

National loans offer a very different problem. These loans are dependent wholly upon the sovereign will of the state. A study of the safety of these loans must be a study of the state's good faith and its ability to maintain this good faith. The huge proportion of war loans and the emphasis which has been placed upon certain types of foreign bonds have led many to believe, as previously intimated, that foreign national issues are peculiar. Quite true, the variation in size and conditions under

which the national loan must be made will require a different emphasis, but the fundamentals determining safety are no different.

In conclusion the author desires to emphasize that the purpose of the book is the analysis of investment securities, rather than a mere statement of the principles. This has necessitated in the discussion of many points, a consideration of accounting, corporation finance and law. If the mere treatment of investment principles had been considered—this would not have been necessary—but no real analysis of investments can eliminate them. It is, however, extremely difficult to draw the border line between these respective fields and any one who would write upon the subjects of investments would utilize the material in these respective fields, of course, to a varying degree. But one thing certain, if an analysis is to be made, large use of these fields must be made or the analysis will fall far short of what it should give.

The aim of this brief has been to set forth a short statement indicating the purpose of this book, the boundaries of the subject, and the limitations to which it must be confined. With this statement of the purposes of the text we proceed at once in the next chapter to an examination of the principles of investment securities.

CHAPTER II

GENERAL PRINCIPLES OF INVESTMENTS

The fundamental elements in the selection of an ideal investment, are: (1) safety of principal; (2) certainty of income; (3) rate of income;¹ (4) legality; (5) stability of market price; (6) marketability; (7) appreciation; and (8) diversification.² Any security, to be classed as an investment, must in a measure fulfill all these requirements, though no security will be found possessing them in perfect equality. However, the same elements are not equally essential to all investors, and to pay for what is not needed means a needless sacrifice of income. Also, a demand for an increased ratio of any one of these elements will result in a corresponding decrease in the others. It is absolutely necessary, for example, that the investment of a business surplus have a very high degree of convertibility. But, as greater convertibility means a lower rate of return, it would be unnecessarily costly for the trustee of a widow's estate to place the same emphasis on this element as would the investor of a business surplus. The trustee would then be lowering the rate of return, and also be paying for something the estate does not need.

The investment of insurance company reserves, banking

¹The first two of these principles, which deal directly with the individual security and its value, must be determined by the analysis of the corporation issuing the securities, and are treated in Books II and III. The legality of securities is covered in chapters vi, vii, and viii of Book I, and further consideration is given to Stability of Market Price, Marketability, Appreciation, and Diversification, in chapters x and xi of Book I.

²If the topics of this chapter were treated as Lawrence Chamberlain has analyzed them in his *Principles of Bond Investments* (chapter iii) under the heading of the "Ideal Elements of Investments," rather than "General Principles," the topics of tax exemption, acceptable duration and acceptable denomination, value as collateral, and exemption from care, could well be included. As a complete chapter is devoted to the taxation of securities, no reference is made to it in this chapter.

funds, business surplus, widows' and orphans' estates, etc., each have their own peculiar needs, which can be met with a resulting advantage to the funds affected. Consequently, an understanding of investment principles is needed to enable each purchaser to select the investment best suited to his requirements.

Safety of Principal and Income.—Of all elements, that of safety is the first requirement in any investment. The history of a large number of securities bears evidence that safety of principal is practically possible. Whatever the purpose of the investment, safety must not be sacrificed, though the demand for even this element may be carried to an extreme. For illustration, the trustee of an estate who prefers Civil Loans might purchase a two per cent United States bond, while a municipal bond yielding five per cent would have insured the necessary security, while bringing a higher rate of return.

Safety must not be confused with the selling value of property. The investor is interested in earning-power. Many purchasers of bonds have drawn the conclusion that because a bond is a specific lien it is secure. The value of the property as security of the bondholder depends upon the property as a going concern. "Even after the bondholder has exercised his rights of foreclosure, he finds that the value of his security still depends on what the properties can earn for him. And this earning power should be determined on a minimum basis."¹

Safety of principal and income are normally interdependent. Ability to meet interest payments regularly, usually indicates the possession of property of some value. Where considerable irregularity occurs in the tenancy of the property, bonds or mortgages upon real estate possessing margins ample to insure absolute safety of principal, will not necessarily give the same assurance of safety of income as do state or first class railroad bonds. On the other hand, in some states it is still possible for municipal bonds, issued under certain conditions, to lapse in interest, and suit can be brought only for the defaulted interest payments. Action for the principal can be brought only after the date of its maturity. In the days when railroads were

¹Spencer Trask & Co., *Unpublished Lectures*.

overly anxious to obtain control of a large number of subsidiary lines, they guaranteed the securities of these subsidiary properties, a practice which frequently resulted in higher prices being paid for these securities than was justified. This supposed re-inforcement of credit frequently was based on the idea that safety of principal and safety of income were synonymous. Needless to say, the uninitiated has too frequently accepted a guarantee as an assurance of absolute safety. The value of the guarantee depends, first, on the ability of the company to meet its charges without the guarantee, secondly, upon the soundness of the guaranteeing company, which means its ability to pay the income.

Rates of Income.—The first question raised by the individual using the proper precaution in making his initial investment is: "What rate of interest can be expected from a perfectly safe investment?" He finds at once that the rate varies with the character and safety of the company upon which the security is placed, the newness of the industry, and the date of the issue. While, theoretically, United States bonds possess a higher degree of safety than the state bonds of New York or Massachusetts, for all practical purposes the securities of these commonwealths possess as good security as the United States bonds and formerly under normal investment conditions paid a much higher rate of return. With a complete return to normal conditions, this relationship will probably again prevail. A number of street railways, electric light and gas company securities, with safety equal to that of certain railroad securities, pay a higher interest return than the railroads. A number of industrial securities possessing safety equal to that of several public utilities of the first rank are selling on a higher average basis than these same public utilities.

Any considerable fluctuation in the net yield of a strict investment is to be seriously questioned. As Greene points out: "It is not good financing to sell evidence of indebtedness at a heavy discount, even though the stated rate of interest be below the usual percentage. It is better, if possible, to arrange the rate of interest so that the bonds, or notes, will fetch par. . . . If a million dollars is needed, the company must put out

\$1,250,000 (4% bonds) at 80, to obtain the required sum; the interest to be paid annually, meanwhile being the same as though five per cent bonds were issued at par. . . . If it (the issue) requires a rate of interest far above the ruling market to enable the issue to fetch par, it is proof that the amount of principal asked for is too large for the business to support."¹

Until 1898, interest rates steadily declined, and the net yield of investment securities was correspondingly lowered. After this date interest rates slowly followed the upward trend of the general price level. All of the long-timed bonds issued by the nations of Europe have furnished, because of the very long period over which they have extended, some interesting evidence of the influence of the interest rate upon the prices of bonds. A study of the net yields of the long-termed high-grade bonds is also an interesting verification of the response to the changing demand for an increased yield. The higher the character of an active security (of the so-called investment class), the more sensitive it is to the changing market rates of interest. High-grade bonds which have no attached features that give them an artificial market are thus the best barometers of the influence of a permanent changing market. Though the fluctuations of investment securities are not so wide as in the more speculative issues, the former class is more sensitive and represent more accurately in their narrower fluctuations the investment market demand. The influence of a very abnormal situation, such as the recent European War upon municipal security yield, shows that the conditions applying to a market over a long period may also hold true even in a temporary change in the market.² With the breaking out of the war, the temporary scarcity of funds and the timidity of investors forced the yield of municipal bonds to unheard of heights; but with the unparalleled inflow of gold into the United States, municipal yields settled to low records.

Marketability.—Though every strictly investment security should have an absolute assurance of the payment of its prin-

¹Thomas L. Greene, *Corporation Finance*, Third Edition (1913, pp. 5-6).

²For a detailed discussion of these influences see chapters x and xi.

principal and income, it does not necessarily follow that all securities possess an equally ready marketability. The security of a small city may possess the highest degree of safety, but its narrow and inactive market might make it difficult to sell if an immediate sale were imperative. A forced sale would probably mean a sacrifice in the sale price. But, if ready convertibility is demanded, it must be paid for in a lower rate of return than can otherwise be procured in a security of equal value which does not have an immediate convertibility. An investor, however, purchases a security for holding, and he has, with few exceptions, no need of ready convertibility. At most, the investor will need only a fraction of his holdings in immediately convertible securities, to meet an emergency. A great deal has been sacrificed by American investors who have paid for ready marketability, when it served them no purpose. European investors are not so often guilty of purchasing something they do not need. They are mindful of the fact that they are purchasing to retain the security until maturity. The safety of their principal is equally good, and the slower market is compensated for by a higher rate of return. Though less frequently considered by the average layman, the question whether it is essential that income be sacrificed for convertibility should be given more consideration.

A great many corporations, for purposes of emergency, must keep a certain amount of funds in such form that they can readily be converted into cash. In these cases, convertibility is essential, as a corporation may unexpectedly be forced to call upon all its available resources. At the time of a crisis it would be costly for a corporation to have securities that could not be immediately disposed of without a large sacrifice.

The character and size of a company will largely determine the breadth and activity of its market. If the earnings of the company have a wide and irregular fluctuation, ready convertibility may be obtained and a higher rate of income procured, but at a sacrifice of the principal. The same would also be true of a purely speculative issue. But as the conversion of security holdings is most frequently needed during a falling or depressed security market, the risk involved in a speculative-

investment would offset the advantages of conversion. Equally dangerous would it be for the corporation's surplus, if its surplus were invested in a high class security that had an active but narrow market, for the narrowness of the market usually increases under the strain of a general market depression. The market of a security for a business surplus must possess continued strength as well as activity.

Legality.—In addition to the dependence of the value of a security upon the market and the internal condition of the private or civil corporation, there is the third factor of legality. Legality of securities becomes basic to security values when the rights and limitations of these securities are defined by constitutions and statutes, and interpreted by courts and commissions. Questions affecting legality of stock issues and their rights have been so well standardized that the question of direct priorities and claims is of rare occurrence. Disputed claims are more apt to occur concerning the mortgages back of bond issues; namely, counter claims between the creditors of the corporation. The standardization and the extraordinary care taken by the high grade banking house in the selection of legal counsel, have made the question of legality, the most important to the investor, the least to be feared. When a legal question has once been correctly interpreted, unlike either market or internal factors affecting security values, it is fixed as long as the statute in question is in force. Other factors affecting security values never remain constant. They are constantly changing, a condition which necessitates a constant and intelligent watching of market and corporate conditions.

As long as the corporation is meeting all of its obligations, no attention is paid to priorities or claims of holdings. Let the corporation, however, get into difficulties that may or do bring about receivership, and legality then does become of first concern to the holder of the security. Where the organization is large, and is composed of many subsidiary corporations, as are most railroads, many counter claims of creditors are apt to arise. If out of the tangle of mechanics liens, underlying issues upon particular properties or readjustments, issues following several junior issues, etc., the properties are adequate to

cover the security holder's claims, his legal rights can be said to be worth par. It is legality in this sense which concerns the investor.

In civil loans legality is quite distinct from the problem of legality in corporate loans. Specific claims in the form of mortgages supporting the creditors usually do not exist in civil loans, except in a few instances¹ where specific rights against the property are given by the municipality. The security of the creditor's claim depends wholly upon the civil divisions' powers and rights to levy and collect taxes. As a result, an illegal or void issue does not have a single dollar of tangible property to satisfy its claim. The careful distinction which is now made in statutes between principal and interest should also warn the investor that the legality of the one might be maintained without the other. A certain civil division in the southern states, on whose issue the interest has been legally declared without claim, is only awaiting the date of maturity to pay its principal. But an issue of civil securities in these days is rarely illegally issued, though the purchaser of these securities must remember that an illegal issue will have no recourse to tangible assets of any character. Even the innocent purchaser, where the issue is made without legal authority, must accept his losses.

The legality of the bond should not be confused with what constitute particular claims of an issue. An investor frequently assumes from the name of the issue that he possesses certain priorities in claims which the description of the mortgage clearly does not indicate. A careful reading of the mortgage deed, or even the statements on the bond certificate itself, would reveal very specifically what these claims constitute. But the loss that the investor might suffer in insolvency and receivership because of his claims being further removed than he thought, is not an error of legality, but a loss due to carelessness on the part of the investor as to an understanding of what his claims are. So frequently have investors suffered losses

¹The more common of these liens are on water-works plants, though one issue of school district bonds is recalled in which a mortgage was placed on the school house as security.

because of this confusion, that the actual rights of the investor should be ascertained by a careful reading of the mortgage instrument, or by a detailed interrogation of the banker selling the issue.

Neither should the certification which vouches for the genuineness of an issue be confused with the validity of the security. The former pertains to the right of issue, the latter to correctness of the issue. Law firms skilled in municipal law usually pass upon the accuracy of the issue and trust companies certify as to the genuineness without affirming the validity of the issue. Investors of municipals knowing the necessity of legal accuracy, should refuse to purchase an issue whose validity has not had the certified approval of a well-known legal firm specializing in municipal law. And it is upon the character of the legal firm that the analyst must base his conclusion.

Stability of Market Price.—Stability of market price is often confused with safety of principal. Where the safety of the principal is assured, the fluctuations in the market price are generally caused by a change in general market conditions. George G. Henry interprets these price movements as follows:

“Broadly speaking, the market movements of all negotiable securities are controlled by two influences, sometimes acting in opposition to each other and sometimes in concert. One of these influences is the loaning rate of free capital; the other is the general condition of business. A low rate of interest or the likelihood of low rates has the effect of stimulating security prices, because banks and other money-lending institutions are forced into the investment market when they cannot loan money to advantage. Conversely, a high rate of interest or the prospect of high rates has the effect of depressing prices, because banking institutions sell their securities in order to lend the money so released. The automatic working of this process tends to produce a constant adjustment between the yields upon free and invested capital. When money rates are low, securities tend to advance to the point where the return upon them is no greater than that derived from the loaning of free capital. When rates are high, securities tend to decline to a point where the return is as great. This explains the influence of the first factor.

“The other factor is the general condition of business. Good business conditions, or the promise of good conditions, tend to advance security prices, because they indicate larger earnings and a stronger financial condition. Poor business conditions, or an unpromising outlook, have the reverse effect.

“The larger movements of security prices are always the resultant of the interaction of these two forces. When they work together the effect is irresistible, as when low interest rates and the prospect of good business conditions occur together, or when high money rates occur in the face of an indicated falling off in business activity. At such times all classes of securities swing together.”¹

In periods of business depressions or financial panics, safety of principal is affected; but the more stable a security, the less is its market price affected by changing market conditions. These factors, however, affect a stable security only temporarily. Yet there are influences which, other things being equal, may result in a permanent lowering or raising of the security price. A general fall in prices may be caused by a large demand for capital and a corresponding rise in interest rates, or by an oversupply of the securities due to the decrease in demand or a growing scarcity in the commodity used. Under reverse conditions, prices will rise.² These influences are external, and while they may affect the price of the security, they must not be confused with such causes, as arise out of a company's own internal condition. Any considerable fluctuation in price resulting from this latter source must be viewed with apprehension.

Appreciation.—Is future appreciation possible, if the required safety of principal and income is assured at the time the investment is made? If appreciation should arise out of a change in the attitude of the market or estimates of the company's security, the investor is the gainer thereby, but this rise is the result, not of any change in the value of the security, but of a change from a former mistaken judgment which under-

¹George G. Henry, *How to Invest Money* (1908), pp. 109-111. Also see chapters x and xi on “Market Influences on Security Prices.”

²See chapter xi on “Market Influences on Security Prices.”

estimated the value of the security. A change in the attitude of the market in this case causes a change in demand, but does not affect the safety of the security. If appreciation arises out of any change within the company, which is true appreciation, it must have some direct effect on the other factors of the ideal investment. Where appreciation occurs, the safety of principal and income will be increased or appreciation has no significance. This at once raises the question as to whether investing on the possibility of appreciation does not make the security a speculative risk. This obviously depends on where the line of demarcation is drawn.

When safety and stability are the chief considerations, it is doubtful whether the investor is warranted in looking for much appreciation in a security. The possibility of an appreciation in price involves the greatest risk, and usually means more than a corresponding sacrifice of the other ideal elements of an investment.

A junior railroad bond or a bank stock may, under rare conditions, have sufficient security to satisfy all claims for safety, and at the same time have large possibilities of appreciation. It is a question, however, whether even in these exceptional cases the safety of principal and income are not materially affected or the amount of the income legitimately expected on the investment foregone. The latter is especially true of the stocks of a new bank which is conservatively managed, when small dividends are paid in ratio to the amount added to surplus. But it can be argued that this is merely a transferring of an amount due the stockholder, to the surplus fund, and is really the same as so much additional investment. This latter is often interpreted as appreciation, though it is not appreciation as the term is used here. If the appreciation in price is relatively more than the ratio of the amount diverted from earnings into surplus, appreciation can strictly be said to have taken place. It is, however, only the investor with large holdings who can afford to wait for this appreciation.

Occasionally, because of external conditions, the price of a security may suffer a temporary depression which is unwarranted. Security prices affected by these conditions will even-

tually appreciate to their true value. Louis Heft, in discussing the market values of railroad bonds and notes, gives a clear statement of these influences: "The market value of a railroad security does not depend always upon its actual, intrinsic value alone, *i.e.*, upon the property and its foreclosure value, pledged as security, and the other liens, prior and junior, against such property; but it is affected quite often and sometimes quite materially, by extraneous influences, among them the temper of the times; the state of the money market; the quoted price; whether or not it has a broad and ready market and is a legal investment for trust funds or savings banks; its form, whether easy of negotiation and how quickly it can be converted into cash; when it matures; its rate of interest and the income it produces at the price; whether or not it is listed on the stock exchange; the personnel of the board of directors of the railroad company; the prevalent reports, true or false, of the state of the finances and affairs of the road; the effect of recent legislation or expected legislation; recent decisions of the higher courts; pending litigation that affects the road; events and reports of political significance, local, state, national, or international."¹

Neither should appreciation be confused with the fact that the bond bought at a premium or discount is paid for at par, on maturity. A bond bought on the basis of 95 and retired at 100 has not appreciated 5 points. To the purchaser of this bond, 95 is the principal, and while 100 is received at maturity, the 5 points have already been allowed in the increase of the net yield, and only 95 can be considered the unimpaired principal of the investment.

Further, an increase in price, due either to a change in the amount of money in circulation, or in the demand for capital, is also wrongly called appreciation of the security itself. The price of the security has increased, not because of some change within the company itself, but entirely on account of external conditions.

Diversification.—Though diversification is not an inherent

¹Louis Heft, *Holders of Railroad Bonds and Notes, Their Rights and Remedies* (1916), p. 1-2.

quality of the investment itself it insures greater safety to the total holdings of the investor. It has long been an accepted principle of investment bankers, that a distribution of purchases, regardless of how small the total holdings may be, is as important as a wise selection of the individual security. Absolute and unqualified safety can never be indefinitely guaranteed, no matter how impregnable the position of the security may be at the time of its purchase. Though a very well selected security seldom succumbs to failure, risks—which can never be entirely eliminated—should be reduced to a minimum. The danger of new and unfavorable risks is also the reason why changes in investments should be made by the holder if the security held begins to show signs of permanent weakness.

This risk can be partially offset by a diversification of investments, so that the investor's total holdings would not be lost in the failure of one issue. It is highly improbable, with a distribution in a widely scattered group of securities, that the failure of one issue would involve the integrity of the other securities held by the investor. In order to insure against such a contingency, a diversification of holdings should be made in more than one type of industry. Legislative regulation in states, where regulation is in its infancy, will probably be more effective in its influence on public utilities, than it will be on industrials. And the danger of repudiation for illegality of issue, though now reduced to a minimum, is more possible in civil loans than in any other type of securities. By a proper distribution, the advantages possessed by one security are thus pitted against the disadvantages of another.

Several English writers strongly maintain not only that a distribution of securities should be made on the basis of holdings in different companies, but that it should also follow along the lines of geographical diversification. The contention is that as great a reduction of risk is secured in a geographical distribution as in a distribution among different types of companies.¹ While the data are not sufficient to allow any positive

¹See H. Lowenfeld, *All About Investments* and *Investments and Exact Science*. (The major thesis of both of these books is based upon the distribution of securities.)

conclusions, the experience of the last European War would present a very strong argument in favor of this contention. This, however, would apply more particularly to Europe, as all the European countries are small in geographical area, and any serious disturbance in one country is more likely to affect a considerable part of the continent. On the other hand, the United States covers such a large area that geographical distribution is partially met within its borders.

Though geographical distribution does have some very decided arguments in its favor, it also has, with the exception of the national loans of certain first class countries, very positive drawbacks. An investor in the United States having holdings in South Africa, Australia, South America, etc., finds it difficult and often impossible to obtain detailed information concerning them. The eventual establishment of American banks in these countries, which has already started, will greatly facilitate overcoming the difficulties in securing first hand information in foreign countries. But for the present, at least as applied to the investor in the United States, the advantages of geographical distribution of investments have been greatly over-emphasized by this group of European writers.

The diversification obtained by selecting bonds whose interest is due in different months, now frequently urged in advertisements, must not be confused with diversification which effects greater safety. There is an unquestioned advantage to a considerable group of investors in having a regular income, but this is a convenience to the investor and not a problem of investment safety. The argument for selecting bonds falling due in different years is that this practice results in an elimination of risk especially upon net yield. If all one's bonds came due within two years, the general market conditions might be such as to make it an inopportune time to invest all of one's funds. Corporations, likewise, might find it difficult to meet maturing obligations, under a strained market.

Other Criteria of Investments.—In much of the popular writing and discussion on investments, many other criteria are either substituted for the fundamentals enumerated above, or added to this list. Only two or three of these can be referred

to—a sufficient number to serve for illustration. Concerning a few of these so-called fundamentals, there are, no doubt, honest differences of opinion. But the majority of them are not principles, but tests in the application of the principles. Others represent merely the acceptance of the practices of existing institutions, such as savings banks and life insurance companies. These latter should be subjected to as critical an analysis as the investment itself.

In general, the fact that a security is a legal investment for a savings bank of certain states indicates that it is a safe investment. This, however, is not true of all states. The statutes of certain states are either so loosely framed that unwarranted latitude is allowed in the selection of securities, or the state banking superintendent is given an extensive power of selection. If he is of a speculative turn of mind, securities will be found in his list that have no place in the investments of a savings bank. On the other hand, a considerable correspondence by the author with state savings bank examiners and superintendents, has revealed the rejection of some of the very strongest securities. In some cases this was not the fault of the official, but of a badly framed law. Any general acceptance of this criterion is wholly misleading unless the investor has a knowledge of the statutes of the particular state in question.

A company whose bonds have complied with the law for a number of years may be forced into a period of debility. The company, in order to maintain its previous credit position, will sacrifice the maintenance of its physical properties so that its securities may continue as legal savings. This policy has too frequently led to fatal consequences. The Boston and Maine Railroad, with its receivership entanglements, is an interesting illustration. There are also on the market a number of securities which cannot comply in some slight detail with the savings bank requirements for a legal investment. Nevertheless, some of these securities are fundamentally as sound as some of the securities listed as meeting the savings bank law. It should be noted that this statement is not intended to convey the idea that all securities meet this requirement. Neither does a par-

ticular listed savings bank security necessarily meet all of the needs of the individual purchaser. But legal investments for savings banks, as well as those of insurance companies of some states, are supposed to represent the highest degree of safety and avoidance of speculative risks; consequently, the statutes and the published legal investment lists, as, for example, of Connecticut, New York, and Massachusetts, should be given the most careful attention.¹

The laws governing investments of trustees and estates are less uniform than those affecting the investments of savings banks. The regulations are frequently so vague in character that there is a constant temptation on the part of the officials to sacrifice safety to secure larger returns. Often, courts themselves, because of their ignorance of investment values, have violated the interests of estates. A great many estates have suffered large losses where they have accepted tax exempt securities without regard to the safety of the security. Further, where the highest court has not determined either the limitations of the statutes, or what securities can be specifically invested in, estate investments are of little worth as guides. And where the trustee is given wide latitude the investment made becomes a matter of individual judgment, and can only be valued as such. This is largely true of trusteeship investments, for though the court may require a strict account of the whole trusteeship against reasonable losses, it does not do so for any particular investment.

The so-called "American Procedure" law, which practically gives to the trustee (supposedly an expert) discretionary powers of selection, holds true, with a few modifications, in California, Delaware, Illinois, Maine, Massachusetts, Michigan, Mississippi, Montana, North Carolina, Rhode Island, South Carolina, South Dakota, Texas, Vermont, Virginia, and Wash-

¹A very convenient form of reference is Montgomery Rollins on *Laws Regulating the Investment of Bank Funds*, as it is in loose leaf form and can be kept permanently revised at a nominal fee (original issue 1909). Where the acceptable legal lists are published by the banking department, they, of course, can be as readily checked as any other security.

ington. Fourteen states can be said to have no regulation. Alabama, Colorado, Iowa, and West Virginia approve only of civil loans. Wisconsin, in addition to civil loans, permits railroad bonds and real estate mortgages that have paid their interest for ten years. Connecticut allows only savings banks investments, and holds the trustee for losses. Kentucky allows mortgages, stocks, and bonds, under stated conditions. Florida includes bank stocks, in addition to civil loans, and Pennsylvania, real estate mortgages. In Georgia, Maryland, Ohio, and Tennessee, a special order from the court must be obtained before investments can be made in other than state or federal securities. In Minnesota, the trustee must receive a court order for all investments.¹ These illustrations fully bear out the contention that uniformity does not exist, and that only a few states offer any guidance to the average investor.

Investments of the life insurance companies of New York offer the best opportunity for a study of investments of this type of financial institutions. In most states insurance companies are privileged to hold stocks as well as real estate mortgages and bonds. The trend of the character of investments of these companies is an interesting chapter in the history of investment securities. Up to 1906 the trend was toward a substantial decrease in the proportion of mortgages to stocks and bonds, but since that period the tendency has been in the opposite direction.² The companies of the Middle West have always held a larger proportion of mortgages than eastern companies and have consequently shown a larger rate of return on their investments. With the future adjustment under the Federal system of land mortgage banks, together with the closer settlement of farm areas, this advantage will not always continue.

¹See August P. Loring, *Trustees Handbook*. This will be found suggestive to the lay reader, though it is now out of date, as the laws affecting trustees are constantly changing.

²See Lester Zartman, *The Investments of Life Insurance Companies* (1907); also R. L. Cox (pamphlet issued by Life Insurance Presidents' Association, 1915), *Geographical Distribution of Life Insurance Investments*; George T. Wight, *Life Insurance, Farm Loan Investments in War Time* (pamphlet issued by Life Insurance Presidents' Association, 1918).

Whether these normal trends of life insurance companies can be considered a guide for the private investor and his particular needs is, of course, open to question.

The securities held by state banks (commercial) as a class cannot be accepted as an absolutely good criterion. The variation in the laws authorizing both the existence of state banks and the subsequent control is too great to insure that state banks will all serve equally well as guides in passing on corporate affairs. The purpose for which national, as well as state banks, are created, is to do a commercial banking business. If they have the same security demanded by individual purchasers, in their holdings, very much more highly convertible investments must be had to insure the liquidity needed in their investments. It is questionable, then, whether (except for business surpluses or where there may be a demand for hurried liquidation) commercial bank holdings, as a class, are suited as a criterion for individuals who demand more permanent holdings.

It is too common a belief that listing a security in some sort of way guarantees the security. This, no doubt, grows out of the much discussed establishment of a wide and free market where speculation is allowed to have free sway. This is a confused idea. If a small issue is listed and the securities are purchased at irregular intervals, its market may not be as active as the market created by a strong banking house for its own issues. Though the common market secured in listing on the exchange furnishes a more ready market during periods of depression, there is no guarantee that the less active and smaller listed issues will find immediate sale. However, it must be recognized that the large and active securities listed on the stock exchange do have the most immediate market.

An advantage is also supposed to exist because of certain information given to the listing committee of the exchange, and because of the certification by a trust company that the securities are authoritatively issued by the corporation named on the application. While this practice, no doubt, has greatly tended to encourage the publishing of more complete information concerning corporate affairs, this information is extremely limited as compared to what the banker underwriting a security must

have. The exchange is merely an institution that furnishes a market place and fixes the fees that may be charged by its members to their clientele. The regular reports submitted are largely for the purpose of having evidence that the corporation is legitimately operated. No personal examination or investigation is made by the officers of the exchange. They do not in any way vouch for the company, nor are the data required by them in any way adequate for the purposes of making a complete analysis of the corporation. As long as the corporation is a genuine institution, and conducting a legitimate business, the listing committee allows the corporation to have its securities sold upon the exchange market. But this is an entirely different thing from stating that the security purchased upon the exchange is of a certain value. The investment banker must have such information or he cannot continue business. On the other hand, a voluntary association of the character of the stock exchange would defeat its real purpose if it attempted to do more than vouch for the genuineness of the corporate securities. To guarantee the genuineness of the certificates, however, is quite different from guaranteeing the value of the security. Furthermore, as far as genuineness of the certificate is concerned, the great majority of corporation bonds today are certified by a trustee whether they are listed or not. This caution does not, however, overlook the fact that the New York Stock Exchange does have the power of holding its members to rigid account for honest dealing, and that it has particularly exercised this power in recent years.

An examination of the most important stock exchanges in the country shows that normally only from 20 to 25 per cent of the bond listings have a very active market. And even when these issues are traded in, they form a very small proportion of the total volume of the stock exchange trading for the day. Among the issues underwritten by bankers in the United States and never listed, there are many with a wider and freer market than the inactive listed issues on the stock exchange. This is especially true of the securities listed in exchanges outside of the New York Stock Exchange. The necessity of maintaining a free market is of such consequence to the bank underwriting

an issue that it will use every effort through its own offices to maintain this market.

Commercial bankers in New York who lend on collateral it is true, still give preference to the active listed securities. But even here differentiation must be made between the practice of New York banks and banks of the interior, where high grade bonds, though not active, are as readily accepted for collateral as more active securities. The larger part of the advances of bankers in New York, however, are on securities held for speculation. To the investor who purchases securities and places them in a strong box, a high degree of hypothecation value is not the most important consideration, for he would be paying for an advantage he does not need. For the banker making loans from day to day, the acceptance of listed securities is the simpler and safest plan, as he can more easily follow the price movements of the securities which he holds as collateral. With this close observation of prices, the general information which the "loan cashier" obtains concerning the character of the corporation has, according to practice, been adequate. In these very methods of advancing funds which give such great liquidity to security markets, also lurks the greatest danger to the stability of the security market in periods of depression.

In rapidly changing markets especially, the quoted price of the less active issues cannot be taken as an indication of the price that will be paid for the next offering. If the amount is large, the inactive listed security may find no market, or the price may be greatly depressed. And even in securities of the highest value there is no guarantee, especially with stocks, that a price has not been pegged—*i.e.*, supported by a bank or individuals—and the price under heavy selling pressure would then have that much greater drop. The market, it is true, eventually discounts such influences, but what of the losses in the interim? This does not signify that the same danger does not exist in unlisted securities. Where it does, and reactions occur, the results are even worse. The pegged price is generally a thing to be shunned. Now and then a large bank has maintained the price of a new issue in a company that showed positive evidence of future earning power. In the latter case

the strength and ability of the banking house should be examined as well as the soundness of the corporation.

In distinguishing between the advantages of listed or unlisted securities, the purpose of the investment would, from the preceding discussion, appear to be the principal guide to the investor. If the security is purchased purely for investment yield and to be held till maturity, activity of the market may serve no purpose. If it is necessary to use the securities frequently as collateral in stock exchange centers or if the investment is to be used for banking funds, or a corporation's surplus, then a listed issue often possesses a decided advantage, especially if it is a large and active issue. Again, for example, there are a large number of corporation note issues which are not listed but which have an active outside market and which are considered good collateral. From the investment point of view, the strict adherence to the application of the fundamentals laid down in chapter two, as applied to the purpose, is the safest course. And a proper understanding of investment values will disclose where security prices depart from their actual worth.

CHAPTER III

WHAT IS INCLUDED UNDER INVESTMENT SECURITIES, AND THE CLASSIFICATION OF INVESTMENT SECURITIES

The needs of corporate and municipal financing have evolved numerous security issues to provide funds. Each class of these securities, whether counted as an investment or not, serves a particular demand. Useful as the function of all these various instruments of financing may be to business, our study is strictly confined to investment securities.

Bond classifications, for the most part, are for the purpose of designating common characteristics which will assist in analysis. Bonds and mortgages, as a class, are the most ideal forms of investments, but it does not follow that all bonds and mortgages are ideal investments. Neither does it mean that there are no stocks which cannot be considered as investments. There are stocks issues which are far superior to some bonds and mortgages. A statement of the characteristics of stocks, mortgages, and bonds will make this clearer, and also partly explain why bonds and mortgages, more completely than any other class of securities, fulfill the requirements of an ideal investment.

Stocks of a corporation represent ownership in the corporation, and with it, the right to determine its policy by vote (usually only in the case of common stock) and to share its profits. With ownership goes the risk of proprietorship. The ownership, for all practical purposes, represents a continuous holding, and can be realized upon only by liquidation of the corporation, or by the sale of the securities. Even where capital stock is divided into common and preferred, and the latter is given preference to assets and dividends, this is true. Where no bond issues are outstanding, and a regulation provides for

preferred stock priority over any subsequent issues, the financial position of preferred stock in relation to common stock is the same as that of a bond, though its legal position is not. The stockholder cannot enforce the payment of dividends as the bondholder can his interest.

The long established and large earning power of a considerable number of industries issuing preferred stock has more than offset these legal objections. Because of this exacting legal qualification, the selection of preferred stocks as investments must be more rigidly made and confined to a much narrower group of preferred stock issues. Even some of the bankers who have specialized in high grade preferred stock issues have not adhered with the same degree of faithfulness to sound investment principles as those dealing exclusively in higher grade bonds and notes. Since the rude awakening, however, experienced by the preferred stock market following the over issue of preferred stock from 1907 to 1912, the situation has been improved. Well-worded regulations were seemingly accepted as ample security for many enterprises which were grossly over-capitalized, and whose issue of stock was unwarranted. The depression, following the regular "temporary after-panic-boom," checked much of this ill-advised financing sooner than would otherwise have been possible. The experience has not been without its profit to the investment market. In the higher grade preferred stock issues, the same method of financial analysis (not legal) employed in determining the security of a bond, can be used. The margins of safety, however, necessarily must be larger than those for bonds, but so far as the analysis of securities goes—the principles laid down in this book can apply as well to stocks as bonds.

Credit loans, some of which form our most ideal investments, can be classed under two general divisions: namely, (1) current accounts, and (2) time loans. Under the first, come all forms of commercial and bank credit. Under the second, are classed: promissory notes, building and loan association securities, some forms of insurance policies, mortgages, and bonds. All of the second group are based on contracts of a formal character which state the amount of the principal, the date of payment, the rate

of interest, the payor, the payee and the terms of the contract. Of these securities, the promissory note, used for current obligations, is an instrument employed almost exclusively in commercial banking, to which its study particularly belongs. Likewise, the building and loan association securities and the special investment forms of insurance are governed by such special considerations that they are deserving of more particular treatment than can be given in these pages. The closer kinship, however, of mortgages and bonds, both as to legal and financial security, does permit much the same analysis.

The mortgage instrument is a formal written contract in which the payee, for the use of funds secured by his property, usually real estate, agrees to pay interest and to return the amount of the principal at a given due date. The large amount of these loans held by insurance companies and savings banks is an evidence of the high regard in which these securities are held. For certain classes of investors they are not so desirable as equally secured bonds, but discrimination must be made in supplying needs of different classes of investors if we are to follow sound investing to its logical conclusion.

With equal security mortgages have averaged a higher rate of return on the investment than bonds. In declining markets, where sales have been forced, the fall in the price of mortgages has been more pronounced. The market is always narrower and their turn-over slower. Often disputed, as this last point is, the position of the old national banking law seems to recognize the slowness of mortgage realty turnover. The hypothecation of mortgages (that is, the depositing of the mortgage) has been equally disadvantageous in depressed markets. The short duration of the average mortgage in this country also has been a serious objection of those who have sought long time investments in order to avoid the constant care of reinvesting. A mortgage also lacks the convenience of a small or common standard of denomination, which frequently makes it difficult to find a buyer with the exact amount of the mortgage offered. Mortgage companies have overcome this objection by the issuance of certificates or bonds against the mortgage. This, of course, then transfers the investment to the class of bonds for

which a national market is now being rapidly developed. The numerous restrictions in the statute of limitations have also made the real estate mortgage foreclosure proceedings more costly than bond foreclosures. The larger amounts of the bond issues and the convenience of the trusteeships greatly reduce these costs for bonds, and leave the investor, not versed in the intricacies of the law, free of these difficulties. This advantage does not, of course, apply to the real estate bond. Where the mortgage is on local property, there is, on the other hand, the decided advantage of having the property under personal observation.

The bond is a formal species of the promissory note. The bond differs from the ordinary promissory note in the greater formality of the instrument and its length of life. They are alike, in that they both must be cancelled by payment. The bond, like the note, is a conditional contract which contains an agreement promising to pay a fixed sum of money on a specific date, with a fixed rate of interest, paid at certain intervals. The rights, privileges, and limitations granted the holder of a registered bond, as well as the payor of the obligation, are determined by the kind of instrument issued.

In less than a half century, the corporation bond has come into prominence. Prior to this, bonds had been used in Federal, state, and to a limited extent in municipal financing. But even the great municipal bond issuances are of more recent years. With the municipal bond, there have also developed a large number of municipal statutes and legal decisions, which are further evidence of its growing importance. Prior to the World War, the total annual corporate and municipal bond issues had reached from one and a half to one and three quarters billions of dollars. If the World War teaches a national thrift one-half as thorough-going as the well-known French thrift, what a market has been created for American municipal and corporate bonds!

The wishes of all classes of investors can be satisfied by a selection from a great variety of offerings ranging from a Federal bond, par excellence of safety, to the bond which borders on speculative risk with its corresponding higher rate of return.

Denominations range from a \$50 Liberty bond or a \$100 railroad bond, to the \$10,000 Federal bond. Notes of short duration, and bonds with a term of a century are to be had with marketable values corresponding. In the selection of a bond, a preponderance of any one of these elements may be secured. As stated in a previous chapter, however, when the purchaser demands any one of these elements in a greater degree than needed, he suffers a corresponding loss in his net yield by paying a higher price for the bond.

A particular reference should be made to the place that short-term notes having the formal security of a bond have come to occupy. With the increased use of funded obligations on the part of industrials, the short-termed notes in the next decade will have a larger importance than in the past. In the past, short-termed notes have been used merely for emergency purposes or to tide a corporation over a bad market until interest rates had adjusted themselves to lower levels. This use of notes particularly has been made by corporations with larger fixed properties and normally carrying large funded obligations. Notes in these companies have often been used to take care of obligations assumed for extensions, improvements or the funding of old obligations.

While this use of secured notes will continue, short-termed notes will find larger use in the permanent financing of certain types of large industrials. This will be true particularly of industrials which can come into the market at irregular intervals for large supplies at advantageous prices. With provisions for a relatively larger margin and a generally more conservative policy in their issuance than required of bonds, notes should be equally safe. Their purchase, however, should be confined to large purchasers of securities in very close touch with the market or buyers who need to liquidate their funds within a particularly short time. There seems to be little to argue in their favor for the investor who should put his funds in long-time obligations. There may be exceptions when the investor desires to wait for a more advantageous market, though note issues are not normally put out at these times because of the disadvantage to the corporation.

Classification of Bonds.—The direct mortgage, because of its simplicity, seems hardly to call for a classification, except where it is a part of a bond issue. The great number of individual types of bonds, of which there are now several hundred, necessitate a reduction to some simple classification in order that the discussion may proceed in an orderly and scientific manner. The large number of names and qualifications which may be attached to a single bond issue, and the number of classifications in which this one issue might be placed, make it exceedingly difficult to formulate a simple, and at the same time inclusive, classification. Consequently, every classification yet constructed, has been subject to criticism. Any division into classes, then, must be somewhat arbitrary, but if it is reasonably simple, and it is workable, it will serve the purpose.

Any scientific classification is for the purpose of correct identification in the discussion of the subject-matter; beyond this it has no function. Consequently, the purpose of a classification, though the discussion of it logically belongs here, is better understood when a more complete understanding of the subject-matter is obtained. The foregoing is not intended to belittle the importance of classification, for technical discussion can never gain any degree of accuracy without an accurate nomenclature. It is not an infrequent practice, however, for popular writers on technical subjects to devise some supposedly new classification in order to appear entirely original in their treatment. These efforts too frequently merely result in new labels. There is no claim of originality for the classification in this book. It follows the general classification of bonds now most widely accepted. A close study of the various classifications that have been made will show that they are all fundamentally the same, though they may vary considerably in detail.

The frequent misunderstanding of the purpose of a bond classification and the actual information given by it, calls for a word of warning. The multiplicity of names in bond issues in the United States has always been bewildering to the English, who have largely adhered to the debenture issues, which are a general claim against all assets and not a specific claim against any particular assets. Nevertheless, there is no question that,

especially in the earlier days of railroad financing, issues were floated to better advantage because of this wide use of nomenclature. The casual observer who looks for the lien of his security in the name, is often deceived. The use of "First" attached to prior claims and all forms of initial issues, even to the most remote claim in security, has led to much confusion. Even after a bond has been placed in its correct general classification, the actual lien must be obtained from the detailed description of the mortgage. Only an experienced reader of mortgage bond titles can easily place it. The consolidations and mergers in railroads and public utilities have been the chief causes for these confusing titles. With the tendency toward the consolidation of all issues, we will in time have greater simplification, both in the names and the number of kinds of bonds issued.

As a general rule, priority of different securities within the same company is not so difficult to determine. But the confusion as to priority of securities having the same lien in different companies is only relative as to security. A general claim of one company will often be much more valuable than any one of the prior liens of another company. Further, if there are a number of other liens junior to the one held, it is not the policy now wholly to disregard the interest of the junior claims, though in a forced sale of some properties, it is true, prior liens have the right to receive settlement before any return is allowed on junior claims. In the reorganization of corporations, junior liens receive consideration, and compromise usually takes place between the first and subsequent liens. It is essential to recognize this latter fact, both for the interests of the prior holders, and for the corporation operations; because if more money is needed, new bond issues will be wanted, and the credit for these issues must be maintained.

Consequently, the great number of different liens existing in a single mortgage has precluded the possibility of giving it a simple descriptive name that would clearly indicate the lien of the security. Both compound and complex names have been used for the purpose of stating the exact character of the lien, but they have, too frequently, not accomplished the purpose.

To one familiar with bond nomenclature, these complex names do serve a very useful purpose in designating the character of the bond, but even the experienced investor is not certain of the status of the bond without a careful reading of the mortgage instrument. As previously stated, however, "First," as well as other prefixes, to bond titles, have had a direct sales value.

To the experienced investment banker, this latter point may seem to have been overemphasized, for his retort is: "What is there in the name as long as you have a valued lien?" This is true. But this warning is more particularly addressed to the beginner, who is continually getting into difficulty with bond names by accepting them at their face value. He, as must be expected, accepts the name as being complete, and technically correct. This is not the case, as all investment bankers know.

The four large classifications of bonds now generally accepted are those based on: (1) the character of the obligor; (2) the purpose or function of the issue; (3) the character of the lien or security; (4) the manner of redemption, and evidence of ownership and transfer.¹

These classifications make no pretence of being exhaustive, but they do contain all the more common issues now used. The student, after a careful study of these classifications, will have little difficulty in determining the meaning of other new titles, as the "derivatives" of all bond issues can be found under these four main divisions.

¹In attempting to master any complicated classification in which several hundred names are involved—and this can be universally applied to any classification—the reader should attempt to obtain a clear understanding of the description of each individual bond. Rarely is it advisable for him to commit to memory a list of names forgotten the following week. It is of far more use to understand how to construct a classification. Many students, when the study of investments was first taken up in our college curriculums, naïvely considered that they had an understanding of investments when they had committed to memory a long list of bonds. Fortunately, this error is being corrected. The important point in the study of investments, as in any scientific treatment, is to acquire the ability of analysis—the answer to the why, when and where.

I. CHARACTER OF CORPORATION ISSUING¹

I. CORPORATION BONDS.

A. Public Utilities.

1. Electric Light Bonds.
2. Express Company Bonds.
3. Ferry Company Bonds.
4. Gas Company Bonds.
5. Interurban Railway Bonds.
6. Railroad Bonds.
7. Steamship Bonds.
8. Street Railway Bonds.
9. Telephone and Telegraph Bonds.
10. Terminal Company Bonds.
11. Water Company Bonds.
12. Water Power Bonds.

B. Industrial Bonds. (For illustration.)

1. Steel Manufacturers.
2. Clay Product Manufacturers.
3. Automobile Manufacturers, etc.

C. Miscellaneous.

1. Drainage Bonds.
2. Irrigation Bonds.
3. Levee Bonds.
4. Mining Bonds.
5. Real Estate Bonds.
6. Timber Bonds, etc.

II. CIVIL LOANS.

A. National Bonds.

B. Territorial Bonds.

C. State Bonds.

D. Minor Civil Divisions of the State.

1. County Bonds.
2. City and Town Bonds.
3. Special Assessment District Bonds.
4. Township Bonds.
5. Other types. (See Classification II.)

¹It has seemed best not to include the detailed description of each individual bond in the body of the text for the reasons stated above. An alphabetic catalogue of all bonds included in the following outlines is given in Appendix A. The student will find this more convenient for reference, which will be necessary until he acquires a familiarity with bond nomenclature. Montgomery Rolins, *Money and Investment* (a dictionary of financial terms) and also *Smith's Financial Dictionary*, are convenient references. Lawrence Chamberlain's classification of bonds, in his *Principles of Bond Investments*, has not been excelled. The main headings of the classification used by the author are similar to those of Mr. Chamberlain's classification.

The titles and sub-titles of the classification of bonds according to the obligor, are self-explanatory. This division, together with the character-of-the-security division, is the most important of the adopted classification. The obligor-classification is the basis of discussion for the chapters of the second division of this book on corporate loans. The bonds in this group are discussed in detail in Book II (Corporation Loan), and Book III (Bonds Whose Primary Security is Land), and IV (Civil Loans), of the text, with the exception of Express and Ferry Company Bonds, which have been omitted, because of the very few issues outstanding, and the very limited number of investors who have any interest in them. A very considerable difference will, as mentioned in the preface, be found in the completeness of treatment of the various bonds in this classification, owing to the difference in the importance of the issues and to the amount of material available. Railroad bonds, because of their preëminence, are given the most complete treatment. Any individual reference to irrigation, levee, and drainage bonds under civil laws has been omitted. The special characteristics of these latter bonds make them more nearly akin to the corporate group than to civil obligations.

Civil loans include both the Federal and state issues, and those of the minor civil divisions. The former entirely depend upon the good faith of the government, but the latter are also subject to action at law, by the purchaser of the corporate securities. Territorial bonds of all national governments are practically always, as with the territory issues of the United States, authorized by the Federal government. The Philippines and Hawaiian issues, though not an obligation of the United States, are authorized by Congress, and are also made tax exempt in the United States. The Panama issues are a direct obligation of the United States government. The District of Columbia issues, a direct obligation of this district, are also secured by the additional pledge of the Federal government.¹

Before the European war the bonds of the national govern-

¹The beginning student of national issues should be careful not to confuse the United States "Consols" with the securities issued by the Government of Great Britain called "consols" (sometimes called Goschen's).

ment, with few exceptions, were purchased only by banks and other financial institutions and by large investors seeking tax-exempt securities. As a result of the campaign during the War for the sale of Liberty loans, the holders of national bonds now reach into the millions. Though a very considerable reduction in the number of holders of Liberty bonds and other European war bonds will take place in the next few years, there will still be a large number of individual holders of war issues.

II. CLASSIFICATION ACCORDING TO THE PURPOSE

A. FOUND PRIMARILY IN MUNICIPAL ISSUES.

1. Anticipation Tax Warrants.
2. Charter Bonds.
3. Delinquent Tax Certificates.
4. Drainage Bonds.
5. Improvement Bonds.
6. Intercepting (all types Sewer Bonds).
7. Irrigation Bonds.
8. Judgment Bonds.
9. Levee Bonds.
10. Paving Bonds.
11. Railroad Aid Bonds.
12. Reclamation Bonds.
13. Revenue Bonds or Notes.
14. Road Bonds.
15. Sanitary District Bonds.
16. School District Bonds.
17. Sewer Bonds.
18. Special Assessment Bonds.
19. Street Bonds.
20. Subsidy Bonds.
21. Tax Arrearage Bonds.
22. Tax Relief Bonds.
23. Water Bonds.

B. FOUND PRIMARILY IN CORPORATION ISSUES.

1. Adjustment Bonds.
2. Bonus Bonds.
3. Bridge Bonds.
4. Consolidated Bonds.
5. Construction Bonds.
6. Continued Bonds.
7. Development Mortgage Bonds.
8. Dock Bonds.
9. Extended Bonds.
10. Extension Bonds.
11. Ferry Bonds.
12. Founders Bonds.
13. Funding Bonds.
14. Indemnity Bonds.
15. Interim Certificates.
16. Purchase Line Mortgage.
17. Purchase Money Bonds.
18. Receiver's Certificates.
19. Redemption Bonds.
20. Refunding Bonds.
21. Renewal Bonds.
22. Temporary Bonds or Certificates.
23. Terminal Company Bonds.
24. Unifying Bonds.
25. Wharf and Dock Bonds.

Again, as with the classification according to the obligor, the classification according to the purpose of the issue is often the designation of the title is of the utmost importance; in implied in the title of the issue. In a few cases, it will be noted,

others, it has no very important significance and does not completely tell the purpose of the bond issue. A designation of bond as a school bond, railroad aid bond, or refunding bond, is valuable, though in the latter case it does not state what property the funds have financed. Any study of this classification must recognize these limitations.

III. CLASSIFICATION ACCORDING TO THE CHARACTER OF THE LIEN.

I. Bonds with General Claims.

A. Civil Loans.

1. Bonds.
2. Certificates.
3. Notes.

B. Corporate Debentures.

1. Debenture Bonds.
2. Debenture Income Bonds.
3. Debenture Mortgages.
4. Debenture Mortgage Bonds.
5. Income Bonds (Abbreviation.)
6. Plain Bonds.
7. Preference Income Bonds.
8. Receivers Certificates.

II. Bonds with Secured Claims.

A. Personal Security.

1. Assumed Bonds.
2. Guaranteed Bonds.
3. Indorsed Bonds.
4. Joint Bonds.
5. Stamped Bonds.

B. Lien Security.

(X) Character of Property Pledged.

a. Personal Property.

1. Collateral Trust Issues.

- (a) Certificates of Beneficial Interest.¹
- (b) Certificates of Indebtedness.
- (c) Collateral Income Bonds.
- (d) Collateral Mortgages.
- (e) Collateral Notes.
- (f) Collateral and Participating Bonds.
- (g) Collateral Trust Bonds.

¹Certificates of Beneficial Interest are frequently abbreviated to Trust Certificates.

- (h) Joint Collateral Trust Bonds.
 - (i) Mortgage Collateral Trust Bonds.
 - (j) Railway Trust Bonds.
 - (k) Residuary Estate Bonds.
 - (l) Stock Interest Certificates.
 - (m) Stock Trust Certificates.
- 2. Sinking Funds (all types).
- 3. Equipment Securities.
 - (a) Car Trust Certificates.
 - (b) Car Trust Bonds.
 - (c) Equipment Bonds.
- b. Real Property.
 - 1. Extension Bonds (on all types of property).
 - 2. Farm Mortgage Bonds.
 - 3. Land Grant Bonds.
 - 4. Municipal Mortgages.
 - 5. Real Estate Bonds.
 - 6. Real Estate Mortgage Bonds.
- (Y) By the character of the Priority of the Lien.
 - 1. Blanket Mortgage Bonds.
 - 2. Consolidated Issues (see Collateral Issues).
 - (a) Consolidated Mortgage Bonds.
 - (b) Consolidated and Refunding Mortgage Bonds.
 - (c) Consolidated First Mortgage Bonds.
 - (d) First and Consolidated Mortgage Bonds.
 - (e) Second Consolidated, Third Consolidated, etc.
 - 3. Debenture Mortgage Bonds.
 - 4. First, Second, Third, etc., Mortgage Bonds.
 - 5. First Lien Bonds.
 - 6. First Lien and General Mortgage Bonds.
 - 7. First Mortgage and Trust Bonds.
 - 8. First Trust Mortgage Bonds.
 - 9. General Mortgage Issues.
 - (a) First and General Mortgage Bonds.
 - (b) First General Mortgage Bonds.
 - (c) General and First Mortgage Bonds.
 - (d) General First Mortgage Bonds.
 - (e) General Mortgage Bonds.
 - 10. Improvement Mortgage Bonds.
 - 11. Mortgage Debentures.
 - 12. Mortgage Income Bonds.
 - 13. Overlying Bonds.
 - 14. Preferential Bonds.
 - 15. Prior Lien Bonds.
 - 16. Refunding Issues (see Collateral Issues).

- (a) Refunding Mortgage Bonds.
- (b) Refunding First Mortgage Bonds.
- (c) First and Refunding Mortgage Bonds.
- 17. Senior, Junior Bonds.
- 18. Underlying Bonds.
- 19. Unifying Bonds.

III. Bonds with Security Liens, but having special qualifying additions to the Mortgage. (All bonds for a designated purpose could be included in this subdivision.)

- 1. Assented Bonds.
- 2. Extension Bonds.
- 3. Joint Bonds.
- 4. Joint Collateral Trust Bonds.
- 5. Leasehold Mortgage Bonds, etc.

The classification of bonds according to security of the lien is one of the most important, and it is also the one which must be closely scrutinized. A few of the general features upon which the classification is based should be noted to obtain a more complete appreciation of the lien of the individual bond.

Liens upon property naturally fall into two classes: those which have a general claim and those which have a specific claim upon property. No classification has been found by any author that adequately describes the former group. Instead of classifying all general claims under one head, it might be the better plan to separate entirely the civil and debenture group and place them under two distinct headings. In civil loans (either Federal or state), the holder has no resort for recovery if the bonds are repudiated, for the only security possessed is the good faith of the nation or state. To say that a civil loan is merely a general claim, however, does not adequately describe the characteristics of all civil loans. The bond issues of the minor civil divisions do have a claim against taxes and this legal claim against the minor civil divisions does make this type of bond a general form of claim on the civil divisions for these securities.

The lien of the bonds upon the property security classification (B) is represented by a direct and specific claim upon the whole or a certain given amount of the assets of the corporation. If the company fails to meet any of these accruing obligations,

and foreclosure proceedings are made, these obligations have claims on the property, according to the priority of their liens. The caution expressed earlier, of knowing the exact lien in bond purchases, needs no further reiteration here.

Under property secured issues, there are two general types of lien: those on personal property and those on real property. Personal property, here, must not be confused with personal security; the security of the former is in the form of actual tangible security and the latter is merely an agreement by endorsement or otherwise, guaranteeing the payment, but with no assets given in security.

IV. ACCORDING TO METHODS OF PAYMENT AND REDEMPTION

I. PAYMENT AND REDEMPTION OF PRINCIPAL. II. PAYMENT OF INTEREST.

PRINCIPAL.

1. Callable Bonds.
2. Convertible Bonds.
3. Convertible Collateral Trust Bonds.
4. Convertible Debentures.
5. Convertible Income Bonds.
6. Continued Bonds.
7. Currency Bonds.
8. Deferred Bonds.
9. Drawn Bonds.
10. Equal Installment Bonds.
11. Extended Bonds.
12. Gold Bonds.
13. Irredeemable Bonds.
14. Installment Bonds.
15. Legal Tender Bonds.
16. Optional Bonds.
17. Perpetual Bonds.
18. Preference Bonds.
19. Premium Bonds.
20. Redeemable Bonds.
21. Serial Bonds.
22. Silver Bonds.

1. Coupon Bonds and Notes.
2. Cumulative and Non-cumulative Income Bonds.
3. Dividend Sharing Bonds (limited and unlimited).
4. Interchangeable Bonds.
5. Profit-sharing Bonds.
6. Registered Bonds.
7. Registered Coupon Bonds.

In the fourth group no reference to any particular class of the group seems necessary other than the explanation of the individual description of the bond found in the appendix. These

bond titles, as in all the former bonds, permit of many combinations. In their simpler form, the titles convey their full meaning as clearly as do the titles of Division I.

In the first division of the Payment of Interest, the name or description of the bond will give the reader sufficient information of this class. The legal aspects of registered coupon and interchangeable bonds with which the student should be fully familiar are covered in two subsequent chapters.

In the classification of the methods of payment, many debatable questions arise as to the advantages or disadvantages to the investor of each of the particular methods. Too frequently, these discussions have been wholly based upon the method or methods without reference to the obligor or the needs of the investor. More often, no distinction has been made between the types of corporations or between municipalities and corporations, the same method being urged for all without qualification.

Before leaving the subject of the classification of bonds, some special reference should be made to the methods of paying off bond issues. The two most common methods are by means of the sinking fund and the serial payment. The sinking fund provides for a regular annual sum to be set aside from earnings for the purpose of retiring the bonds at maturity. This fund may be accumulated by the purchase of the securities of other corporations or by the purchase of the bond issue itself. In the latter case the bonds are either cancelled or carried as treasury securities. Since these latter, which can command only the low savings bank rate, are too costly, the latter method is rarely used.

The history of the sinking funds¹ during the railroad receivership of 1893 and 1894 left this form of financing for a time in bad repute. Frequently, even new issues were made to provide for these funds, with a resultant increase of the debt. A more frequent fault of many of these earlier sinking fund provisions was their loose construction, and the consequent disregard of the requirements. This situation cannot all be laid at

¹The history of the sinking fund extends back to 1716, when England's Sinking Fund Plan was created. There is a considerable amount of literature on the Sinking Fund, as applied to National Loans.

the door of the sinking fund. Railroads which had been overbuilt in earlier days might have gradually overcome these difficulties if a financial panic had not taken place; but the weakened financial condition in which they started forced their collapse, and under these conditions any system of repayment would have failed.

Following this chapter of failures in railroad history, many changes were made in the sinking fund provisions, which even now, are by no means perfect.¹ Companies subject to the exhaustion of their assets, such as mining and lumbering companies, were an exception, and were forced to protect their sinking funds in order to secure credit. Other companies soon saw the advantage and made needed changes. These changes and the theoretically stronger position which the credit of the company possessed by the accumulation of a fund soon brought the practice of the sinking fund back into active use, especially with industrials, which have sinking fund provisions attached to three-fourths of their issues.

Of the two questions which have presented themselves in connection with the sinking fund, the first is primarily viewed from the corporate management side, though it also directly affects the investor. The common practice of corporations in the handling of the sinking fund has been to place the accumulation back into the property. Exceptions, of course, must be made to this; for example, small corporations with rapidly depreciating assets, or cases where the actual capital assets are used up (as in mining companies) to provide income. With the large well financed corporation, it may be well argued that the company's credit is more effectively strengthened by placing the surplus earnings back into the property and requiring certain conditions to be met than by putting the annual sums paid into a cash fund, with a trustee. The placing of funds back into the property would be less expensive to the corporation, and as earning power is the ultimate test even with large assets, credit should be strengthened by this provision if it

¹Francis Lynde Stetson, Lecture I (m) *Some Legal Phases of Corporation Financing, Reorganization and Regulation* (1911), pp. 1-76.

results in increased earnings. If this policy is not permitted in the corporations which are justified in using this method, is it not a decided disadvantage to have funds annually withdrawn from the business? From the standpoint of corporate management, it is conceded the soundest policy to borrow up to the point of safety, as that means a larger return to the corporate owners. This would not, of course, as previously acknowledged, apply to such corporations as coal mines where the principal itself is being gradually depleted, or to unstable industries or to civil loans. It would also be well to place in the latter class the corporations that do not make liberal allowances for maintenance, etc. There is, then, a strong argument for permanency in corporate loans by means of the use of refunding issues or the extension of the duration of sound issues by common consent, rather than the accumulation of a sinking fund to retire the issues at maturity.

When the sinking fund is used, the character and control of the trusteeship are the important considerations to the investor. To make the sinking fund a mere bookkeeping procedure, is worse than having no sinking fund, as the entries belie the existence of a tangible fund. The temptation of manipulation is then greater and the funds have frequently been put back into the properties and the properties have depreciated. If the indenture clearly states that the bonds are to be purchased and paid off by the accumulation of the sinking fund, there is little danger of this complication. If the sum is held to maturity, the regulation and guardianship of the fund must be carefully protected.

The serial payment is unqualifiedly advocated by several leading authorities, as the only safe plan for paying off bond issues. Their reasons for judging the sinking fund method to be unsound are briefly: (1) the failure of the actual working of the sinking fund, as illustrated in the great railroad receiverships of 1893; (2) the ease with which the fund may be manipulated and the temptation to do so when the corporation gets into financial difficulty; (3) the difficulty of investing the fund with an equivalent rate of return, particularly where these limitations are placed upon it for its own protection; (4) lastly,

the greater cost to the corporation than by the serial retirement of bonds.

With municipal issues, and issues of corporations whose assets depreciate rapidly, such as rolling-stock and telephone equipment, or whose capital assets are depleted in furnishing income such as mining corporations, the serial form is undeniably the soundest method of retiring bonds. In municipal issues, it is a saving to the taxpayers, as will be explained in detail in a subsequent chapter on civil loans, as well as the most effective method of promoting conservative financing in municipalities. In the growing tendency of over-expenditures, the deferring of obligations to a distant future date is likely to result in reckless expenditure, especially where the politicians are attempting to court public favor. When payments are to be met in the more immediate future, a tax must be raised, and an increase in taxes is not voted without serious thought.¹ In both types of corporations in which the serial method of payment is advocated, the argument that this method promotes conservative financing is also applicable.

¹For an opposite view to this opinion see Edmund D. Fischer, *Municipal Financing, Second Annual Proceedings of the American Investment Bankers' Association*, pp. 57-76 (1913).

CHAPTER IV

ANALYSIS OF THE CORPORATION REPORT

Corporate organizations are beginning to supply sufficient public information to warrant the scientific analysis of their financial condition. A considerable number of corporations are also continually making serious efforts to correct the early errors in the collection and assemblage of data. On the other hand, it must always be recognized that the greater facility with which some types of organizations lend themselves to analysis will mean a considerable degree of difference in the thoroughness of analysis among different types of businesses.

There are other organizations whose methods of collecting and analyzing data concerning their own condition have been retarded by adherence to old customs and practices. In some corporations better cost systems are needed, which will enable closer analysis of the corporations' financial condition. Accurate cost systems eliminate guess work. A large and old concern was recently placed in its creditors' hands because of its bad cost system. Even the president of this particular company had thought his company was making good profits. We have still much to learn in this matter from the English and French practices in corporation analysis. It must not be inferred, however, that an accurate knowledge of costs is the only thing necessary to make a strong organization. Costs are only given, as one method in illustrating the kind of accuracy needed in analysis.

Neither does this imply that all factors necessary to a complete analysis can be measured with the exact nicety of a cost system. For who can measure the reputation of the Pennsylvania system, or the influence of one of the great leaders of industry with a thumb rule? As one proceeds in his study of securities, he is soon made aware of both the many-sidedness and

essential elasticity which must be given certain factors and the minute exactitude required of others. Experience alone can give a full appreciation of this. Statistical data which would have been invaluable in an analysis if they had been correctly interpreted and adapted to local conditions, have not infrequently led to wrong conclusions. There are, for example, more variables in other classes of public utilities than in railroads, and more variables in industrials than in public utilities.

Some territories occupied by public utilities must always be subject to a wider range of risks which greatly increase the difficulty of applying any set statistical method of analysis to public utilities in general. Some industries and utilities are new, and the standardization that comes with years of development is just beginning for them. And considerable standardization must be attained in any industry before an analysis can be much simplified. An industry long in existence, likewise, gives the accountant and statistician an opportunity of knowing the character of its reactions under varying conditions, a fact which makes more accurate conclusions possible. Experience has also demonstrated that the ability to analyze a corporation report depends as much upon the ability to foresee and understand the effect of readjusted relationships as upon an ability to understand the technical details of the reports themselves. The close dependence, also, of the internal affairs of the corporation upon the external conditions of the markets, and the inter-relation between these two factors, have so frequently led to a confusion of what is cause and what is effect, that a sharp distinction should be made between each one of these factors in an analysis. No corporation has long been successful which has been unable to make this distinction. No single source, consequently, is adequate.

Before passing to a discussion of the corporation report itself, a statement should be made concerning the exact functions of the experts who assist the investment banker by assembling the data for him. As is well known, for bringing together of the corporation reports and determining the accuracy of the financial statements given to the banker by the corporation, we are dependent upon the accountant. The fact, however, that a cer-

tified public accountant has signed his name to the official report of a company should not be accepted as final evidence as to the value of the figures in the statement until the exact intent of this certification is known. Furthermore, certifications by public accountants are too frequently given a common status. There is as much difference in the character and thoroughness of the work done by these auditors as there are differences in the abilities of bankers or in managerial efficiency of industrial corporations. The officials desiring that certain things appear in their public report will employ the public auditor who will do as they direct.

Of the several considerations in an audit, the following should be checked: (1) Have the books been audited by a certified public accountant and what is his reputation; (2) what does the certificate signed by the accountant indicate that the accountant claims to have done. Too frequently more is read into the certification than was intended. In some instances, the certificate means merely a balance of the company's statements issued, without any verification of the detail figures which make up these balances. In other cases the audit may include only the audit of certain corporation books without again checking the various entries into these books. Audits have been made and are still being made in which the books of the holding company are audited, but no check is made upon the books of the subsidiary companies. While no false certificate may have been signed in any one of these cases, any conclusions based on these statements may give false results. Criticism of such practices cannot be too severe, especially if these reports are to be issued to the general public. It would indeed be desirable if no public auditor were allowed to certify a corporation report unless he has checked not only the balances but as well ascertained the reliability of the accounts or entries which are used to make up these balances.

In addition to the guarantee of the complete checking of the items and the accuracy of the statements issued, complete enough statements should be demanded by the investor to enable him to draw deductions and to analyze the reports. While the statements, incomplete as to details, may be accurate, any deduc-

tions drawn from them would be erroneous. The only safe deductions which can be drawn from a statement are one from which is certified as to accuracy and one which is complete as to detail. There is no other means by which the investor will be enabled to follow accurately the success of any corporation—consequently these two requirements should be insisted upon. This must not, however, be understood to mean an interpretation of the value of the securities issued by the corporation, though the accountant may make a very complete and detailed interpretation in his confidential report to the banker underwriting the security issue. The public auditor no more than the state officials giving their sanction to an issue, should ever render an interpretation in a public report.

As the valuation of a corporation's physical property is wholly a technical problem, the layman must leave it to an expert. Consequently, the worth of the valuation must be judged indirectly by the reliability of the engineer making it. If the valuation has been made by the state, even though less accurate than the valuation by a private enterprise, it may often be more useful to the investor, since it is the valuation upon which will be based the rates, as well as the amount of the securities that the company will be permitted to issue. Consequently, when securities are issued upon a public utility property, it is absolutely essential that the value of the properties shall be passed upon by a technical expert. While the practice of valuating industrial properties is now more frequent than formerly, the practice is by no means common, though it is as important as the auditing of the accounts. Accountants frequently pass upon the physical valuation of the plant in their audits, but, as experience has shown, this is an unsafe procedure. Though physical valuation in the great percentage of the industrial corporations is not as important as in public utilities, where fixed properties are such a large item, there are a sufficient number in which the fixed property is large, and the physical valuation necessary. While fixed property is of no value without a strong earning basis, conservative procedure in bond issues usually demands fixed property with large margins as security.

The banker, or the financial analyst, in turn is compelled to go to other experts for legal examination of the instruments of issue. The lack of standardization in statutes and judicial decisions and their multiplicity will always make us dependent upon the attorneys' final sanction of an instrument's legality. If the reputability and ability of the attorneys are assured, the investor can with little hesitancy accept the terms of the mortgage as valid.

The misunderstanding on the part of the investor has often been not in the legality of the investment, but in a misinterpretation of the position of the lien in relation to other liens, or of the actual property covered by the mortgage. This error arises, not as frequently claimed by the investor, through the fault of the attorney, but through the failure of the investor himself to read the mortgage, or to ascertain from other reliable sources the specific character of the lien. This is usually a failure on his part to distinguish between mere legality and the constituency of the lien. The attorney's function is merely to determine whether the lien stipulated in the instrument is valid, and what the specific lien is, if interpretation is needed, and not to pass upon the value of these liens. The value of the lien, the legality being assured, depends on the character of the company, and the position of the lien, and this latter can be determined only by a reading of the mortgage or by consulting the bankers.

Management, Control and Organization.—Despite the efficiency which the modern corporation has attained in organization, the personnel of the managing staff continues as a strong factor in the consideration of a corporation's position in the industrial world. While an established policy of a corporation may continue in public confidence for a period, this confidence will not long remain without a strong management at the head. The ability of the head-executive becomes increasingly important, with the increasing size of the corporation. In the large corporation, however, the opportunity that the size gives for more intensive organization and the wider group of individuals from which it has to select its officials, give this class of corporation a decided advantage.

As a class, the price of railroad securities and the earning capacity of the company would be less affected by a change in personnel, than in any other type of corporation, and these are the things which most concern the investor. But even with the highly developed organization of railroads today, it is questionable, indeed, whether certain railroad heads do not stand out more strikingly than the name of their own company because of their executive ability. The larger centralized public utility organizations, as a class, rank next to railroads in the power of their continuation. The rapid development and changes in the industry wrought through new inventions in the creating and control of electricity have made the personnel equation, however, a relatively more important factor than in railroads. While the highly developed organizations are recognized as organizations, apart from their leaders, nevertheless, certain members of these organizations stand out in the public mind as the controlling and directing geniuses of the concern.

Industrial corporations, more than railroads and other public utility corporations, reflect the influence of a particular management. Industrials, unlike public utilities, are dependent upon their superiority in overcoming competition. Industrials, unlike most public utilities, with the exception of extraordinarily rare cases, do not possess a monopoly. Neither is mere size and the economies supposedly attached to large corporations a substitute for managerial prerequisites.¹ Even so-called fundamental patents are not entirely immune from meeting severe competition in new patents and processes. The recognition of this possibility has led conservatively managed corporations to write off the original valuation of these items and carry them at a small nominal price. This does not mean that a company which does take a risk must be eliminated from any consideration by the investor. No company is ever progressive that does not take risks. But in the long run the company that most

¹For illuminating discussions and illustrations see: A. S. Dewing, "The Law of Balanced Return," *Amer. Econ. Rev.*, vol. vii (Dec., 1917), pp. 755-771. Condensation of the same article in A. S. Dewing's *Financial Policies of Corporations* (1920), vol. iv, pp. 3-68; and A. S. Dewing's *Corporate Promotions and Reorganizations* (1914). This book is quite unusual in its wealth of illustrations of incompetency in industrial management.

successfully protects the interests of its security holders, also adopts the policy of reducing any chance of losses to a minimum, thus offsetting these risks in these particular problems. In this connection, the difference in the character of organization—a difference essential to each respective type of corporation—must be recognized in making any comparisons.

Affiliated and controlling interests frequently have given a corporation the financial support or the needed markets to make its success assured, even in its formative period. Strong banking connections usually mean not only an advantage in borrowing during normal times, but the assurance of sufficient funds during the periods of strain when funds are most difficult to procure. Certainty of its financial situation will not infrequently enable the corporation to engage in new undertakings that would be impractical for it to assume without this assurance. Affiliation with other corporations, either in ownership of stock or in directors, means a permanent market for at least a part of its products. The prohibitions of the Federal anti-trust laws which forbid one man's acting as director on the board of more than one corporation, if he is a banking director, will make the common representation in more than one company more difficult to establish. But the fact that two or more corporations may have the same directors need not mean any specific or direct benefits other than the assurance of an able directorate.

Inter-company and holding company relationships, as referred to in a number of cases in subsequent pages, must be scrutinized with especial care to determine the importance or non-importance of this relationship. A holding company, to acquire control, may be forced to finance to the limit of all the assets of the subsidiary companies, and the subsidiaries may already have issued securities to the full value of these assets. Financial control may exist with nominal control in the operation of subsidiary corporations, or vice versa—a condition which might defeat its own purpose.

Amount, Form, Priority, and Margin of Securities, as Related to Property Values.—It is self-evident that the differences in amount, form, priority of claim, and the margin of assets and earnings will affect the value of a security, yet every

day the banker must emphasize the relative importance of these facts. The trite old saying, "What is in a name?" was never more true than here. The name "bond" on a security is not a guarantee of its soundness. The common stock of a high grade railroad, for example, is far more desirable than the bonds on some of the ill-fated irrigation districts in Colorado at the present time. Though the bonds of two different companies may have the same legal claims, they cannot be put in the same class if one company's bonds are secured with double the assets and earning power of the other company. Neither can securities on the same company with different priorities, that is, liens, be given the same importance.

The value of every security, after the value of the assets and the earning power of the corporation is established, must be determined upon its relation to the amount, form, priority, and margin of security offered. It is the almost unlimited variety of combinations of these factors that makes the analysis of each security issue an individual problem. Even in the same company a small issue with first priority in claims might be a very desirable holding; yet with a large number of junior issues outstanding, the more remote holdings will have little value. These conditions must also be applied with wide difference in the different types of companies. The average industrial can never carry with equal safety as large an amount of bonds, for example, as the public utilities, for a very much smaller proportion of the industrial corporation's assets can be carried as fixed assets. The later study of the individual classes of securities readily reveals these distinctions that must be made.

The Balance Sheet and Valuation of Assets.—The balance sheet represents the condition of the corporation upon a particular date. It is further a representation of the assets and liabilities, and their difference, less owned capital, is the net worth of the property to the owners.¹ As the object of the balance sheet is to show the financial condition at the end of a

¹An excellent discussion of the net worth of the corporation to the stockholders (called net proprietorship by the author) is that of Henry Rand Hatfield, *Modern Accounting* (1913), pp. 1-34. See also Roy B. Kester, *Accounting Theory and Practice* (1917), chapter iv.

specified period, the contents of these statements should be constructed with sufficient detail to disclose accurately, the character of the assets and liabilities. As the balance sheet reveals only the condition of assets and liabilities at a specified time, the necessity of rendering statements at regular intervals requires no argument.

A large percentage of investors forget this limitation of the balance sheet; and in examining a statement eleven months after the original date of issue, they place as much emphasis upon the financial condition shown at this latter date, as upon the date of issue. Though the investor is not interested in the temporary shifts in the conditions of the corporation, he must know whether these temporary movements have any tendency toward permanent changes. An examination of the last four or five balance sheets will usually give some indication as to what normal allowances should be made in the interim. This would not, of course, be true of a speculative security.

In the examination of a company's balance sheet, as stated in the introduction, the examiner should first make certain that his statement includes complete and full information. If the corporation is a holding company, both a consolidated balance sheet and a balance sheet of the subsidiary properties should be examined. The demand for a consolidated statement cannot be too strongly emphasized and no investor should ever give any consideration in making an analysis of a corporation to any other than a consolidated statement. Where the consolidated balance sheet, which represents the complete combined statement of both the parent and subsidiary companies, is of sufficient detail, it may be adequate. If one or two accounts need more explanation than can be given in the items of a consolidated balance sheet, an explanatory foot note should be demanded. If a supporting schedule is attached to the balance sheet, which should practically always be the case, such needed explanation can be secured in this schedule. But only after the assurance that one possesses a complete statement, should one proceed to make a detailed analysis of the individual items.

Taking first the asset side of the balance sheet, there are, roughly, the following main divisions: current assets, deferred

and contingent accounts, and property assets or fixed assets. Current assets include all items of short terms which are used up directly in production. Deferred accounts are the credits made to the company for the prepayment of such accounts as taxes. The fixed assets include all properties as land, buildings, and machinery, which are of a permanent character. In the discussion of the various divisions of the balance sheet, only some of the more important items will be used, as they will illustrate the principles. The more modern order of the treatment based upon liquidation of accounts given above will be followed in the discussion of these items rather than the old English method of placing fixed property accounts first in the balance sheet.

Current accounts require more particular analysis in industrials. In most industrials they are the most important measure of the company's weakness or strength. The most common current assets carried in the balance sheet are cash, inventories, accounts receivable, and notes receivable. Other current assets will usually be found to be a modified form of these same items. The commonly accepted ratio of two to one of current assets receivable to current liabilities, can hardly be taken as an absolute standard. A one and one-half ratio might be better than a three to one if the liquidity of the former company's accounts is very much greater than that of the latter. The impossibility of establishing a common standard equally adapted to all corporations has necessitated a generally conservative rule, which becomes an ultra-conservative rule in some corporations. While the margin of current assets over current liabilities must be considerable, this amount should be based upon the character of the accounts and the particular character of the business. A company might be in a very strong position, so far as the amount of its receivable accounts is concerned, but, if they were not convertible at the maturity of the company's own current bills, the company would eventually be placed in an embarrassing position, if not receivership. A great many companies which extend long-time current credit have experienced this very difficulty. Organizations, on the other hand, which are not forced to extend their current receivables beyond fifteen

or thirty days, and also are careful to whom they extended credit, do not often experience these difficulties. Where the extensions cover a seasonal period and the products must be produced some months in advance the company's own current payables which are carried for a longer period may force it into the same situation, which resolves itself again into the question of convertibility of accounts; namely, the floating of a long term obligation.

There are numerous ways by which corporations classed as speculative concerns endeavor to strengthen their cash position just before the issuance of the annual report, with the purpose of making a good showing in the annual statement. This is frequently done at a sacrifice of the corporation's best interest. A corporation whose securities can be classed as an investment will, of course, never follow this practice. If the practice of discounting receivables is made, the conditions affecting these discounts should be known. Though this practice has been viewed askance by reputable business men in this country, there will eventually be a broader use of discounts. While there is danger of a company succumbing to inflation, proper safeguards will prevent this by requiring a given relationship of current accounts to liabilities in each particular type of business.

Again, loans may be made by the holding company to subsidiaries to make up operating deficiencies and the loans carried as current receivables in the balance sheet of the holding company. A similar advance may also be extended to a subsidiary of a subsidiary, or from one subsidiary to another. These loans in a few instances have been used for the payment of the capital stock of the holding company, or for the liquidation of current liabilities of the subsidiary. If used for the latter, to cover operating deficiencies; for example, it is a danger signal, yet it would never necessarily appear in any general statement of a holding company. Manipulations of the assignment of business to the various subsidiaries will also enable considerable losses to be centered in some companies without any indication of it in the holding company's general statement, and the holding company will still indicate strong earnings, but a detailed study of this is the function of corporation finance.

Inventories should be taken at cost, except where the market price is lower, in which case the latter should be taken. This is especially necessary where there are wide and decided fluctuations in the price of raw materials or other goods appearing in inventories. If the contrary practice of writing up profits is used with an increase of the market price of raw products, paper profits are obtained, a condition which is contrary to sound accounting principles and very often leads to endless confusion. The other consideration of inventories, namely—the stock on hand—should be governed by the character of the business, the period of production, seasonal conditions, shortage in supply, and the character of payments. A few years ago a large automobile corporation purchased a large quantity of material and experienced very great difficulty in meeting its payables, as the sales department failed to materialize on its own program. The corporation was consequently overloaded with both raw material and finished cars, and a large amount of inventories at the close of the season. Where the production period extends over several months, it may be necessary before the regular selling season has ended, to purchase large quantities of raw products, but the character of the industry will easily determine this condition. Lastly, the date upon which the report is rendered should be checked to see whether it represents an average position for the year. An abnormal condition either way at the time of the rendition of the report, will give an entirely false impression of the company's normal condition during the remainder of the year.

In valuating current assets of industrials, the distinction between the greater stability of the fixed assets and the constant change taking place in current assets, is apparent. Current assets, even where they form an unimportant part of the total assets, are quickly turned. If for no other reason, an extraordinarily large amount tied up in inventories means the cutting down of profits by an idle investment in these items. In extraordinary times, an advantage may exist in buying at lower prices, but not over very long periods. The possible innumerable changes that may affect current assets demand an ultra-conservative valuation in contrast with well-maintained fixed property accounts.

The deferred accounts upon the asset side of the balance sheet are usually of minor importance. Accruals of interest and rents and advances to employees need be considered only where the advances are above the normal amount which should be carried by the corporation. While some one has termed some of the deferred assets, "assets by courtesy," the practice of considering these advances where made to the benefit of the corporation is legitimate, but they should be written off as the periods expire. Granting the legitimacy of the accounts, the only check necessary is the correct distribution of the amount for the periods used.

In the third main division of assets, namely: fixed assets, the first thing which is likely often to cause serious differences, is the lack of uniformity in valuating these assets. Even where an actual physical appraisal is made, the difference between engineers' estimates adds to the difficulties of the accountant. With sufficient allowances for these differences, the appraisal of a property will give the most accurate basis for judgment. In considering the equity behind his bond the investor is primarily interested in the corporation as a going concern, although he cannot disregard liquidation value, that is, the sale price in foreclosure, or what method of valuation will be used as a basis for rates or tax purposes. If the conservative method is followed in valuating the company assets, *i. e.*, valuating it as a going concern, margins sufficient for all practical purposes will be allowed to protect the fixed property account against changes of valuation made by any commission.

Of the fixed property accounts, land is generally the least changeable in character for the purpose for which it is used. The conservative practice is to carry this land at its original cost. Some companies follow the doubtful practice of writing up the assets of a company where the land increases in value. While on the face of it, this may seem justified, the writing up of an asset means the arbitrary creation of a profit. It makes the statements of the company misleading, as a statement of profits should consider only the actual returns from the current revenue of the corporation; otherwise a paper profit has been created. Where land depreciates in value, the amount of this depreciation should be written off out of current earnings

in order to maintain the fixed property equity back of its security.

Where the land is held by railroads, street-railways, and other public utilities, the evaluation of land is not such a simple matter. In the first case, contrary to popular opinion, the terminal properties in the city which probably constitute on the average more than 75 per cent of the land value owned by the railroad, have been bought at varying times and at prices much higher than adjoining land. It is extremely difficult to determine what these costs should be, and what allowances should be made for the right of way which the street-railway only has the privilege to use for a term of years. These problems are discussed at great length in subsequent chapters.

Buildings, and other fixed property accounts as ties, rails, cars, gas mains, electric and telephone wires, etc., should be carried at cost, less depreciation. All additions to these accounts should be added to the total cost of the property, and conservative practice demands that no replacement costs be considered in these totals. According to the rulings of the Interstate Commerce Commission, where a railroad constructs a building on a new site and then abandons its old building, the original cost of the latter should be deducted from the cost of the new plant, to obtain the value at which the new plant should be carried (less the depreciation carried).

While the amount for depreciation must be determined in each particular instance according to the business of the corporation, sound financing no longer questions its necessity. Such allowance should be annually set aside to cover the replacement when required. The two methods most commonly used is to retain the assets at their original value in the accounts and to set up a reserve for depreciation on the liability side out of earnings. The other is to charge off earnings against the property assets and show a reduced value each year. Thus the property account would show a decline each year. The former has the advantage of showing at all times the total investment in these assets that has been made as well as the total reserves for depreciation.

Accounting history is replete with the failures of corpora-

tions which have deferred making allowances for this fund. The ruling of the Supreme Court in the *Knoxville v. Knoxville Water Company*, was an unequivocal acceptance of depreciation deductions. The court held that, even though the water company had failed to make provision for depreciation in the past, the company could not value the property at reproduction costs without deducting the allowance for depreciation. The forced recognition of depreciation is not now apt to be necessary because of the advantage in allowing its deduction for the income tax.

Irregular depreciation allowances should usually be viewed askance. This practice nearly always denotes an attempt to bolster up net profits. One of the more important things in the unfortunate experiences of the Metropolitan Street Railway system of New York City was its disregard of depreciation requirements. Where the allowance is made according to production, considerable difference will be found between the "lean and fat years," but this is an irregular sum due to the method and is not the same as an irregular allowance regulated by the annual choice of the directors. The former is based on a sound policy of allowing a proportionate amount for deterioration; the latter is practically always an attempt to make a good showing in net profits.¹ In speculative issues, the latter has been used for the manipulating of stock prices and in some instances this policy has been directed by the underwriters to protect their own interests. Unless a rigid policy is adhered to by a corporation, depreciation is the easiest to omit, when pressure upon the demands of the corporation is heavy. No doubt, there may be at considerable intervals, an occasional year when a deferment of the charge could be made under such pressure, but the reason for it should be frankly stated. It can be safely said that all corporations whose securities are to be classed as investments must make adequate provision for depreciation.

The same procedure should govern the estimates of valuing

¹For interesting references in railroad surplus accounts, see Homer Bews Vanderblue's *Railroad Valuation*, pp. 115-117 and 171-173; see also Eastern Advance Case of 1910, 20 *I. C. C.*, pp. 43 and 271; *Spokane v. N. P. Ry. Co.*, 15, *I. C. C.* 376, 410 and 415.

machinery and tool accounts, as is used in the case of buildings, except that the former are much shorter-lived. The same is true of furniture and fixtures, which are usually a very unimportant item in the total amount. Patterns, plates, copyrights, patents, and kindred items are very difficult to appraise. The character of these items, as with good-will can be so easily increased to offset either over-capitalization or losses from bad management, that they demand the closest scrutiny as to their validity. Patterns and copyrights which have been allowed to accumulate for years at their full value, and can never be used again, will, in the majority of cases, eventually place the company in a very weak position. Swollen patent accounts have had the same experience. On the other hand, there are patents which have been worth millions. The best method of checking the value of the accounts representing good will is to capitalize the income which actually represents income derived from possessing these rights. Conservative practice, however, usually demands that patents be written off long before the expiration of their legal rights. If for no other reason than the fact that the market discounts a condition of this sort long in advance, this should be done.

There is no standard established for the use of good-will. As in the case of other intangible accounts, the choice depends upon the desire of the management. In all cases the item of good-will should be separated from the fixed property account. Too frequently it is not, and in corporations where this is true, an accurate analysis of the property cannot be made.

The justification for the existence of a good-will account is made on the basis of the surplus that has accumulated out of earnings, which shows both the past earning capacity of the business, and the existing earning power of the business. The most prevalent English custom in the sale of business has been the valuation of good-will upon the basis of the net profits from two to ten years in the future, the capitalization rate depending upon the stability of the income of the business. It is doubtful if good-will should ever be considered as anything else than a direct appraisement of that part of the earning power of a company which cannot be attributed to the other assets of the

company.¹ This method of capitalization of good-will does not allow for the valuation of good-will of the company under a particular person or management, but provides for it at the rate which would apply to it, under any management as a going concern. While the importance of management has been strongly emphasized, the valuation of good-will should be made as an impersonal and not a personal matter, if good-will is to be given value of a permanent character.

Though the franchise is quite similar in most aspects to good-will, there are two important differences to be considered: first, that it is under government regulation; and second, that the right to this franchise expires at a given time. This latter condition makes it imperative that the franchise should be amortized during the period of its existence. The present value on the basis of the original value assumed, can be easily ascertained by the amount of amortization. After a period of years, it is also possible to determine whether the original valuation placed upon the franchise is too great for the earnings of the company. In a new company or a new consolidation, this is, of course, impossible. There seems to be a tendency among conservatives, at present, to allow no issue of stocks or bonds for the franchise value, as in the case of Massachusetts, but the tendency is not strong enough to warrant definite assertion, and the ease with which the weather-vane of political opinion is shifted makes prophecies uncertain. But it is not necessary to consider the ethics of allowing a franchise value. The analyst is concerned only with what conditions are, and whether values in property and earning power allowed are sufficient to cover the security under question.

The items of investments can normally be considered a semi-fixed investment, though there are companies whose items may be placed in the classification of fixed holdings and others in current accounts, depending upon the purpose for which they are carried. In either case, the item of investments should be considered separately from either of these two general classes of accounts, and their valuation should be determined according to the regular method of ascertaining values. A sharp distinc-

¹William H. Lough, *Business Finance* (1917), pp. 195-196.

tion should also be made between the investments of stocks in a company's own subsidiary companies (not treasury stock) and the investment in securities of other companies.

Very frequently the investments consist of the stocks and bonds of a company's own subsidiaries. The value of this item as far as the investor is concerned is then determined by the value of the company itself, *i. e.*, its earning power. Where these holdings are of a company's own securities, they do not represent the same "risk" value to the company as the holdings of equal security outside of the company. In the latter, there is greater insurance against risk. Even where a general depression exists, the security of an entirely different company is not apt to be affected to the same extent as a company's own stock.

These securities of a holding company's own subsidiaries should be carried at cost. A reserve, however, should be set up if any depreciation occurs below the price at which these securities are carried. In speculative companies, the actual market price of the security will often fall under par, a condition which will indicate greater weakness in the parent company than the market price of its own securities indicates, especially where it is a holding company. Where the entire amount of the capital stock of a subsidiary is held, there is no basis upon which to judge from the market standpoint, but the analysis of the subsidiary should show the worth of these securities. So much juggling has been carried on under the guise of this account by holding companies that the account should never be accepted at its face value until tested.¹

When securities have been purchased for a sinking fund of the company, they are usually carried under this name. These funds are accumulations set aside to meet maturing obligations. This fund may be put in cash either in the hands of a trustee or the company's treasury, or the funds may be invested in the company's own securities or those of another company. If this fund is carried in the company's own treasury, especially, if it is in cash, it always proves to be a temptation to the

¹See early experiences of Westinghouse Electric and Manufacturing Company.

officials if the company gets into financial straits. There is grave danger in this, as was experienced in the great period of railroad receivership of the nineties. Many investors awakened to find that the sinking fund was a pure bookkeeping fiction, and that the funds had been placed into properties which had also been dissipated in a failing company. Where the fund is turned over to a trustee, there is no question of the safety of the fund, but there is of a low rate of return. That is, a bond's own rate may be 6 per cent, while the trustee allows less than 4 per cent. The same criticism also can be often made of investment in the high-grade securities of other companies. The simplest, and most profitable procedure—a procedure of equal value, both from the standpoint of the rate of return and the increased value of the equity—is the purchase of a company's own bonds for the sinking fund. The burden is equally distributed, no chance of a bad investment exists, and the return is maintained.

If a leasehold has been bought, the value of the leasehold should be capitalized upon the rental value of the lease, and its entire value written off over the life of the lease.

Care should be taken in regard to all property as well as inventories that ample insurance is carried at all times. Concerns which carry large stocks of inventories which are constantly changing from day to day must make almost daily adjustment of their insurance accounts. Where the plants are widely scattered, as in the Woolworth stores, it is cheaper for the company to carry its own insurance, because of the wide distribution of the risk. The amount carried on properties is, however, usually under the amount of insurance that should be carried.

On the liability side of the balance sheet, the four general and common classifications are: current accounts or liabilities, accrued accounts, reserve accounts, and fixed liabilities. While all of these accounts from the standpoint of the corporation must strictly be termed liabilities—from the standpoint of the owners or stockholders they cannot so be classed. The reason for this will appear as the individual items are discussed.

The current liabilities which commonly include accounts payable and notes, drafts, acceptances and bills payable are

unfunded obligations of the corporation. The first of these accounts should always be separated from the last three accounts. The former are the open book accounts. They may vary according to the requirements of the particular business, the season of the year, the turnover, period of manufacture and the date on which the balance sheet is rendered.

Bills and notes payable are alternately used. When both items are used in the same statement bills payable often include drafts payable and acceptances. When funds are needed for seasonable purposes and purchases must be made in advance, or the firm takes advantage of cash discounts, etc., or over due payments, this form of formal obligation is commonly assumed. These obligations ordinarily range for 10, 15, 30, 60, 90 days and six months. The ratio of the amount of current liabilities to current assets and the ability of the corporation out of current assets to meet its current payables as they come due must always be carefully checked. The ability particularly of industrial corporations to keep the current assets sufficiently liquid to meet the current liabilities together with the avoidance in overloading with current payables in periods of strain, will practically always give evidence of the company's strength.

Accrued accounts represent the amounts accrued from the date of the last payment, but not yet due. For example: the last interest paid was on January 1st and the next payment is not due until six months later, a statement then rendered April 1st would show the proportionate amount of interest up to this latter date. The same would be true of such accounts as taxes, payrolls, rents, insurance, dividends, etc. Some corporations include all accrued accounts as a part of the current liabilities discussed.

No balance sheet can set forth a correct statement of a corporation's financial position, unless complete provisions have been made for reserves.¹ Corporate executives are now generally agreed that these allowances must be made. Otherwise in-

¹For a detailed discussion of depreciation and reserves see: Roy B. Kester, *Accounting Theory and Practice*, vol. ii (1920), pp. 120-209; Paul-Joseph Esquerre, *The Applied Theory of Accounts* (1917), pp. 369-383; Arthur Lowes Dickinson, *Accounting Practice and Procedure* (1914), pp. 145-174; and Robert H. Montgomery, *Auditing Theory and Practice* (1919), pp. 129-145, 181-185.

roads are made on the capital investment of the company. Where the individual accounts are adequately set forth, it is an easy matter with comparative balance sheets to determine whether the allowances for these reserves are adequate. Among the requirements for which these reserves and allowances should be set aside are: depreciation of plant, exhaustion of minerals, discounts, bad debts, reduction in value of goods, special benefits, special contingencies, sinking funds for the retirement of bonds and preferred stock provisions against future interest, dividends, special expenditures, taxes and other future outlays chargeable against the current income.

The older practice in providing for all depreciation funds and future allowances was to create a reserve account liability. The more modern practice, but not yet widely adopted, is to differentiate between depreciation allowed against wasting assets and the reserves voluntarily set up to provide for future outlays. The former, for example, is illustrated in the depreciation of the fixed property account of a corporation. Instead of creating a property depreciation reserve as a liability, the amount of the depreciation reserve immediately follows the wasting asset account. As Kester states: "The depreciation reserve is as much a part of the record of the asset as the asset account itself. The two accounts are complementary, neither giving reliable information without the other. The reserve account is thus always and only a balance sheet account."¹ From the standpoint of the financial analyst, this method of treatment by the accountant gives the immediate and complete information wanted without the necessity of further calculation. These are: (1) the original value of the property in the original valuation figures;² (2) the amount of the depreciation allowed up to the time of the issue of the report; and (3) the net value of the property under consideration. The same method of treatment is applicable to such deduction as must be made from receivables, for bad debts and from inventories for the existing value of the stock on hand, etc.

¹Roy B. Kester, *Accounting Theory and Practice*, vol. ii (1920), p. 187.

²While some corporations carried forward only the net valuation figures, there can be little question as to the continuation of the original valuation.

Again looking at such items as Federal taxes, interest, etc., from the point of view of financial analysis, it is obvious that the old method of a specific reserve created as a liability of the corporation is necessary. These allowances are for a liability coming due and created against the company at a future date. This kind of an allowance is contrary to the principle underlying depreciation, namely, the allowance (depreciation) for the replacement of property possessed. While this distinction may not always seem essential for purely accounting purposes, it is evident that the distinction must be made in any financial analysis.

A good deal of criticism has been aimed at the so-called secret reserves which may be created by such methods as the undervaluing of property and inventory accounts, etc., or surcharging depreciation, allowances, reserves, betterment accounts, etc. No specific account, of course, appears in any of these instances. Many other methods are employed which might be suggested, but in each case the purpose is to have a larger net value than is revealed in the accounts. The defense used for such practices is that it gives an ultra-conservative value of properties. While this must be granted, accounts which do not reveal the complete condition of affairs must always be open to question. No one presumably but the officials and probably the directors can know of the true status of the corporation. This in itself is sufficient to subject this practice to criticism. Though the Federal Income Tax Law and rulings are supposed to prevent and correct over-allowances of this character it is questionable whether it is within the possibility of this bureau to check all violations.

Fixed liabilities are divided into two groups: creditors claims and proprietorship claims. Under the creditors' claims are grouped bonds, notes and mortgages, which are distinguished from the current obligation by specific liens, priority in rights, greater formality in the issuance of the claims, and longer duration. The board of directors, under the specified limitations of the charter of their own company, and in most states by statutes, are privileged to make an authorization of securities, though these may not all be sold. The authorized

amount, the amount outstanding, and the amounts held in the sinking fund and the treasury, as assets, should be separately indicated. It is a very common practice not to do this. If a large authorization has been made and only the outstanding issue entered, and if the directors, within a year after a purchase of a security, decided to increase the amount of the issue outstanding, a very material depression in the price of the security held would result. When the margin back of either a fixed charge or a dividend is lowered—and this would be at least the immediate result of an increase in the amount of securities—the safety of the income is more than correspondingly decreased. The exact ratio depends upon the type of organization, the rate increasing at a more rapid progression with the increase in the speculative character of the business. A complete title of the bond or mortgage should also be given, though the title of the instrument on the balance sheet should never be accepted as a complete statement of the lien and priority in claims of a particular security.

The proprietorship claims, the second general division of fixed liabilities, are represented in capital stock, surplus, and undivided profits. The authorization and limitation of capital stock issues are restricted by the same authorities as bond issues, and what has been said concerning authorized and outstanding issues can be applied to the different types of stocks. Confusion as to what constitutes outstanding stock is more prevalent than with bonds, and this matter needs particular emphasis. Authorized capital stock which has never been issued, is frequently called treasury stock, which is entirely erroneous. Treasury stock is a company's own stock that has been issued and brought back into the treasury: (1) through purchase by the company itself; (2) or through a gift; (3) or taken back for bad debts. Treasury stock is always carried as an asset or deducted from the capital stock outstanding and has the right to be re-issued. It has no right to dividends or to vote. Its right of re-issue, no doubt, has been responsible for its confusion with the right of unissued stock which also has the right to be issued. Unissued stock is neither an asset nor a liability, and has the single right of issuance when authorized by the directors. Neither

must treasury stock be confused with the stock of subsidiary companies which is carried as an asset in the balance sheet of a holding company. In most states, newly issued stock must bear full liability, while treasury stock is liable only to the amount for which it is sold.¹ The better practice is to deduct it from capital stock. Where the amounts of these deductions are small, it is of little consequence. Where it is of large amount, the reason for its existence should be known.

In new companies, or in the refinancing of companies, the stock issue is frequently over-capitalized on the theory that the development of the company through this new capital will increase the surplus and earnings of the company to a sufficient extent to warrant this over-capitalization. A strong company with an unquestionable future in earning power may do this. It, however, makes this a speculative and not an investment purchase, so far as the stocks are concerned. With an examination of the methods of valuation of assets, over-valuation can usually be determined.

A very common guide used by some investors is to take the book value² of the shares of stock. The fact, however, that a company shows a book value of \$150 or \$200 a share may have no significance. The surplus which represents the net balances may have been invested in property which is still carried at full value, though it has undergone serious deterioration. A company on the verge of bankruptcy might show a respectable book value. The actual worth, as with every other item, depends on the surplus account which appears in the corporation statement is commonly thought to be derived from earnings. While this is most frequently the case it is not necessarily true. Surplus accounts should be divided into profit and loss surplus and capital surplus. The former is accumulated out of earnings of

¹There are exceptions to this general rule, which can easily be found in such a standard work as Arthur Webster Machen's *Corporations* (1908). The statutes of some states prohibit a corporation from dealing in its own stock.

²The total book value is found by dividing the capital stock and surplus and appropriated reserves by the capital stock. To find the book value of one share, divide the total book value by the number of shares. If more than one class of stock is outstanding, the various stock must be given full preference in the order of their priority.

the business. The latter may be secured from several sources, such as: (1) the sale of assets above their book value; (2) increasing the price at which the assets are carried by a revaluation of assets; (3) by the sale of the securities at a premium. It is obvious that the sources of these funds are so different and their significance to the corporation so distinct, that no argument need be advanced for their absolute separation.

Some corporations divide the surplus, profit and loss, derived from earnings into two classes, namely, the surplus which is to continue permanently and the undivided profit account. The latter amount is separated because it is intended to be only a temporary fund. It is usually held for the purposes of annual expenditures and emergencies, or for the eventual paying out in dividends. Banks are more consistent in their practice of making this distinction between surplus and undivided profits. Corporations have not deemed it essential. It does, however, have the advantage to the outsider of giving more specific information as to the immediate purpose of the corporation.

The conservative practice in building up of surplus is to take it out of current earnings. If the company also follows the policy of writing off its doubtful accounts and depreciating assets, surplus accumulated out of earnings can be taken as an accurate measure of the solidity of the business. The pursuit of this policy also makes it possible for the company to secure outside funds at a greater advantage. The extent to which surplus can properly be accumulated out of earnings depends upon the character of the company. Where risks are great, a large surplus must be maintained, to insure normal safety. If the amount maintained is large, it also assures the continuation of regular dividends. About the only rule that can be laid down is a general one. The amount must be determined by the degree of fluctuation and risk of the business. The policy adopted also depends upon the extent to which the expansion of the company can be carried; if the corporation is not justified in turning increasing profits back into the property, a larger proportion of the profits had better be distributed in dividends. This is especially apt to be the corporation's situation, where its expansion is limited. The opposite policy of

carrying a so-called secret reserve is almost equally objectionable, as it deceives the stockholder—concerning the real value of his holding. The secret reserve is maintained by placing in the special reserve funds a larger amount than is justified, or by the drastic writing off of asset accounts. There is one of two purposes in doing this: either the inside interests desire to secure the stock, or the desire is to be able to revalue assets at some future time, if the necessity arises.

A great many investors assume that because a company has a large surplus, granting it has been accumulated out of earnings, it is in a strong position. Others, strange to say, assume that a surplus fund should mean an equivalent in securities or cash. Though the surplus account must have an equivalent offset in the asset side of the balance sheet, there are no "earmarked accounts" that are placed against it. The corporation management may place this into any account that it desires. If the corporation has had a number of years of prosperity, and then has serious reverses, the value of the surplus is equal to the value of the depreciated properties. Surplus should always be considered in the same light as the investment of capital stock and as a proprietorship account. Even where the surplus accumulations are put into a special fund, there is no especial advantage to the stockholders except that which may accrue in the general advantage to the corporation. A frequent practice is to place a certain amount of the surplus in gilt edge securities of other corporations, a practice which insures liquid assets for the company in case of a crisis and provides collateral in a temporary emergency. These securities, like all others, can only be considered with all assets. This policy again indicates conservatism and the greater security of the company.

The unconditional acceptance of a surplus account, as indicative of good management and a strong company, so frequent with investors, has no warrant, as shown from the above conditions. The origin, character, and relation of the surplus account to all other accounts, must be known before any conclusion as to its value can be drawn. Its complete analysis is as essential as that of any other account.

CHAPTER V

ANALYSIS OF THE CORPORATION REPORT (*Continued*)

An income statement¹ is a historical summary of the business over a period of time, which is commonly published once a year, on the date corresponding to the issuance of the balance sheet. The manager of a company, however, must have these reports at more frequent intervals, in order to detect any change in the trend, and provide an immediate check, if possible. To him earnings are the final test of his success. To the speculator in securities frequent reports are equally important, as his profits must be made upon the knowledge of these fluctuations. To the investor, as frequent reports, are not so essential. The investor selects securities of sound value, and as he is interested only in permanent trends and not in temporary fluctuations, less frequent reports are needed. It is, however, necessary for the investor to know of any permanent tendency that portends of evil consequence to the corporation. In most corporations the careful analysis of annual reports will give the danger signal.

The first caution to be exercised in the analysis of a published income report is to make certain as to the meaning implied in the items used. The different interpretations given to the items in the income statement is far greater than in the balance sheet items. Even the best accountants vary widely in the use of their terminology. It is to be hoped that the same standardization of accounts soon may be secured for all other industries as has been obtained for railroads. It is unfortunate that this situation prevails, but knowing it, the examiner can be on his guard in making his interpretations.

¹For the details applicable to the income statement of a particular type of company, the reader is referred to the particular chapter dealing with the security under consideration. Only an outline treatment of the income statement is attempted in this chapter.

Not infrequently the inexperienced will give a general interpretation of his own in determining how exclusive or inclusive a particular item may be, and nothing is more dangerous than to draw deductions under these conditions. When reports are complete, the danger from this error is very much minimized, as a comparison of items quickly reveals their main content. The expert accountant whose familiarity with all forms of corporate reports enables him to detect the difference of terms and immediately to interpret them, often does not appreciate the layman's handicap. As also pointed out in the discussion of the balance sheet where subsidiary companies exist, both a consolidated income statement, and a separate statement of the individual properties should be required.

Income accounts of the average published corporation report are usually quite incomplete. A General Income Statement of a holding company shows only the earnings to which it is entitled from the subsidiary properties; these earnings include the returns from both stocks and bonds. This does not give any clue to the operating conditions of the subsidiary properties. If the earnings of the company have also come from investment securities—a practice which enables the company to maintain itself—no difference may be shown in its profits; yet the subsidiary properties may be on the verge of bankruptcy. Dividends of a subsidiary might also be deferred by the subsidiary through an agreement of the majority control of the holding company, though the General Income Statement of the holding company would not show it. Dividends might also be continued on the capital stock of the holding company, while in order to maintain these dividends, depreciation charges are partially or entirely eliminated, and maintenance cut to the danger point.

Gross Sales, Gross Revenue, Gross Earnings.—In any instance, whatever form of statement is used, the gross revenue account used should indicate the total receipts from the corporation's operations, before any form of deductions have been made. It will be found that these terms are used differently, even in the same type of companies. What the interpretation of the accounts of the company's own auditor is, of course,

must as previously stated, be ascertained. In particular types of business, it is quite clear as to which one of these headings representing gross returns should be used: for example, in department stores gross sales; in street railways, (preferably) gross revenue and in a business leasing or licensing machinery, gross earning. For analysis purposes the important thing to know, regardless of these technical distinctions, is, what is implied in the particular report.

For particular purposes or for the concealment of the actual earnings and to make a showing of growth, gross returns can often be easily juggled. This again is proof of the necessity of a reputable certified public audit of the accounts. For example: in a holding company, the inter-company accounts may also be used to hide vicious practices between subsidiaries in order to make a creditable showing for the company. The practice, for illustration, of juggling inter-company sales might make a favorable showing of sales when the contrary is true. If the company had a severe slump in its business in any one year, or for a few successive years, it could easily use this method in maintaining the appearance of a continued volume of business. A few years ago a certain Chicago company, which had approximately a 20 per cent decrease in its total volume of sales, showed an actual increase in this year of 5 per cent over the previous year. The same over-statement of affairs has been made by the use of the construction company, of which we have had some interesting examples in the last twenty-five years. This is accomplished by carrying forward inter-company profits. While these are practices of companies which would come outside the pale of investments, it is essential to know the pitfalls in order to guard against them.

Again when the physical valuation has been used as a basis for rate-making, there is an advantage in having the increased re-valuation. Also, when the stockholders desire to sell the property, it is desirable to re-value assets which can be sold for more than the existing book value. To re-value for the purpose of showing a large increase in earnings, or to maintain previous earnings, which may be decreased because of rising price of products, etc., is quite another story. This is not a

defensible practice, and is more frequently used to hide some shortcomings of the corporation, though this latter must not be confused with the adding of capital surplus which is justified. The following will illustrate the former: a small corporation having a bond issue outstanding, and desiring to make a stock issue in 1916, had shown an increase for three years of 20 per cent each year over the previous year. In the fourth year, this fell to a 2 per cent increase. To overcome this, the equipment, etc., was re-valued, and a showing of a 25 per cent increase was made. Mr. Robert H. Montgomery says of this practice: “. . . on the basis of a replaceable valuation less depreciation worth more than they cost originally (business men) wish to set up on their books and statements this diagnosis, and do not like to be told that they are making trouble for themselves. They have a larger valuation to wipe out by depreciation reserves, and thus in a sense they are increasing their cost of production. After a credit to surplus account is once made, it is most unlikely that any part thereof will be used except for dividends.”¹ Whenever re-valuation is made, it should be carried as a distinct item and be properly “earmarked.” Other illustrations might be offered but this will suffice to show what should be guarded against. Of course, no company following such practices could be classified in the investment group.

The gross returns from credit and cash sales in all mercantile and manufacturing companies should be given separately, in order to observe both the working capital needs and the trend of the business. Credit account problems of the kind referred to here do not arise in public utility reports. In this connection the terms and duration of credit extended by commercial corporations and manufacturing plants must be analyzed in the relation to the safety of the company's policy and its capital requirements. Again in commercial and manufacturing corporations, the net sales item—that is, the amount left after the deduction of return goods, discounts, etc., is of the most importance, in some cases even more important than gross sales. The difference between gross and net sales in these corporations

¹Robert H. Montgomery, *Auditing Theory and Practice* (1912), p. 194.

is relatively larger and will be more or less flexible, according to the practices and policies of the individual corporation. If percentage comparisons are made between gross and net sales, especially where a comparison is made with other corporations, care must be used to see that they are both on the selling price or both on the cost basis. The question of the advantage or disadvantage of either method of comparison belongs to the technical problems of accounting. Either method, for purposes of investment analysis, is sufficiently accurate.

Another useful check of sales or income which can also be used in checking all working capital requirements, is a comparison of these accounts with sales. In making such a comparison the period required for making and selling of the product must be first ascertained. If the inventories are then too large for the volume of the sales, a needless investment is being carried which may be indicative of a lax management. It may also indicate a considerable quantity of dead inventory. Where, however, the purchase of raw material can be made at certain periods at lower cost, a large inventory may indicate a decided advantage. Also, if the gross profits from operations compare favorably with the earnings of the former periods, there is little likelihood of inflations.

Operating Net Income.—In the items to be considered and deducted from gross returns in the income statement to secure the net profits, some distinction must be made between the statements of Trading Concerns and Manufacturing Concerns, and Public Utilities and Railroads.

In the first two forms of organizations as already suggested, net sales is the next thing to be found after knowing the gross sales. This is the amount available after the deduction of returned goods, allowances, freight charges, etc. Then in merchandise concerns the cost of sales is ascertained by taking the amount of inventory at the beginning of the year, plus the purchases, less the inventory at the close of the year. The net sales less the cost of sales then gives the gross profits. By deducting from gross profits the expense of doing business which includes such items as expenses for selling, advertising, building expense, administration, etc., net profit from trading is secured. In

manufacturing concerns instead of cost of sales, manufacturing costs which include such items as labor costs, material costs and factory expenses are used. Distributing costs for manufactures, on the other hand, are much the same as those for trading organizations if performed by the corporation itself. In railroads and public utilities these items are generally all included under operating expense.¹

In all of these items the comparative analysis for several years is of value, as likewise a comparison with other companies in a similar field. Here again difficulties arise in comparing one company with another. Where one company turns back a larger proportion in maintenance, depreciation, etc., than another company, a decrease in the ratio of gross profits to net sales or gross revenue would not necessarily mean that the latter company is in a stronger financial position. The former is operating on a more conservative basis. Again, the emphasis which must be placed upon any one of these groups of items depends upon the conditions under which the corporation is operating. This is one of the most difficult of the problems which confront us in the analysis of corporations, and considerable practice is necessary to attain skill in this matter. The particular fundamental details essential to this analysis of the different types of securities are treated under the respective headings of subsequent chapters of corporate securities.

A very common practice and a good one, where correctly used in testing efficiency, is a comparison of the total operating expenses to gross income. To make this comparison more comprehensive, it is made on a ratio or percentage basis, and is called the operating ratio, which is discussed under a subsequent topic.

Practically all classes of corporations will show a relatively greater increase in the percentage of the operating ratio to gross earnings as gross earnings fall in a business depression. A railroad, for illustration, has certain fixed operating expenses which must continue regardless of how large a decline exists in traffic, and a manufacturing plant with a certain capacity out-

¹See chapter xv on Railroad Revenues.

put has developed an organization which in part at least must be continued. Neither does the cost of materials, labor, etc., usually decline to the same degree as gross income. In comparative analyses, all items affected by these two conditions should be included, in order to give a correct interpretation to these differences in declines and rises; otherwise the value of the comparison is destroyed.

Where the corporation attempts to increase its net income from operating by reducing its operating expense through a curtailment of repairs, renewals, and maintenance, the earnings for the period will be overstated. The charge will ultimately have to be made and depreciation will be hastened. A property must be kept as near as possible to its original efficiency. The constant temptation under periods of stress is to curtail depreciation charges, especially when properties are new. To keep a railroad bed or a machine in efficient running order is as essential to production results as the purchase of good materials and the use of efficient labor in production. If actual additions are made, such as new buildings, which did not exist before, they should be charged to the capital account, that is, as new property.

Sound financing, as previously suggested, no longer questions the necessity of annually setting aside an allowance sufficient to cover the entire replacement. It must not be misunderstood, as so commonly believed by the beginner, that these funds are reserved in the form of cash. These funds may actually be reserved and the company not have the funds to cover the entire replacement when needed. The essential thing, as related to income, is its allowance in the deduction from current earnings.¹

Other Income.—When net income from operation has been obtained, net income from other sources is added to secure total or gross income. Other income which includes income from all other sources outside of operating income such as rent, leases, interest, etc., occasionally amounts to a considerable propor-

¹Those desiring to obtain a more complete knowledge of depreciation and the methods of depreciation are referred to the general texts in accounting and corporation finance.

tion of a corporation's revenue. Where other expenses exist and must be met before the net amount due the company is realized, the deduction must first be met. The total income can also be viewed from the standpoint of the amount available for fixed charges. These charges include sinking fund charges, Federal taxes, interest charges, etc., *i. e.*, they are considered a direct expense of capital used in the organization, at least from the standpoint of the financial analysis of the property.

The major portion of outside returns is usually from investments, and consequently, the non-operating income gives no clue to the operating efficiency of the corporation. Where this income is very large, it is apt to hide any weakness existing in operating returns, which is the very thing any analysis should disclose. Investments placed in corporation securities of a different character are an advantage, especially in industrials, in offsetting reactions in the operating revenue. Beyond the amount necessary to insure this risk, it is questionable whether this surplus should not be placed into financing property expansions. Separations should also be made between operating and non-operating costs for the same reason.

Fixed Charges.—In fixed charges are included such items as sinking funds, rentals, taxes,¹ lease charges, interest, etc. When these charges have been assumed (except taxes which are levied by the State), there is no alternative for the board of directors; they must be paid, when due, or the company ceases to be solvent. The more important of these individual items, as related to investments, are the interest charges. These charges should always be studied, primarily in relation to net operating income. As the fixed charges are assumed for the purposes of operation, the provision for these charges should be met by this fund and its safety determined by the margin of the operating net income over the fixed charges. Although the total net income is available for interest, the real test is the margin of net operating income over the fixed charges as the actual success of the corporation's earning power as a going concern is measured by the income derived from its operations.

¹Many accountants would not term taxes technically a fixed charge. For the purpose of obtaining the margin over all permanent charges, it is a fixed charge in investment analysis.

Fluctuations in operating expenses will not rise or fall to an equal degree with the gross returns. Operating expense, for example, will always increase at a more rapid rate than the actual rate of decline of gross. For illustration, if the maximum gross returns for a particular period were made equivalent to 100 per cent and the operating ratio to 75 per cent of gross, and gross returns should decline 25 per cent and operating expense at the same time should go to 90 per cent, a smaller amount would be left for net income.

		Actual Rate of Decline.	Actual Am't After Deducting Am't of Decline.	
Gross Returns	\$1,000,000=(100%)	25%	(75%)	\$750,000
Operating Expense ...	750,000=(75%)	15%	(90%)	675,000
Balance left for fixed charges.....	25%=\$250,000.....			<hr/> \$ 75,000

The reduction of this latter amount correspondingly decreases the margin of safety for the interest charges. This would apply as well to any comparative analysis with other companies and to all of the other constant fixed charges. The maximum amount of fixed charges which a corporation should carry with safety can be easily determined by this test. The test of the "times interest is earned," which is so often used, is also dependent on the same set of facts. A common mistake is to take an arbitrary amount, say "interest earned twice over," and to use this as a standard for all corporations, making no allowance for varying conditions affecting security of earnings in different types of businesses. "Times interest is earned" must always be taken in relation to the character of the business. Normally with the decreasing fluctuation in earnings, the "times interest is earned," other things being equal, should be earned to give ample protection. With increasing fluctuation in earnings, the "times interest is earned" should be increased at more than a proportionate rate.

Dividend and Surplus Policies.—With the deduction of all the items which are included in fixed charges, net profits or the balance available for dividends is left. Mr. Robert Montgomery defines net profit: "The net profits of a business is the surplus remaining from the earnings after providing for all costs,

expenses, and reserves for accrued or possible losses.”¹ The importance of the exact significance of net profits is misunderstood by many investors. This is not surprising, when dealers in securities, especially stocks, are quoting net income, net earnings, net profits, as one and the same, as available for dividends. Lack of rigid standardization in accounting terminology has led to considerable confusion, and investment bankers who have accepted certain terminologies use these terms with no thought of deception.

A banking house in a recent circular announcing a new issue of stock for sale used the terms net earnings, net income, and net profits, interchangeably, all referring to the same thing. The interchange of net income and net profits in the same circular has not been infrequent. If terms are given different meanings, they should be consistently followed and again let it be emphasized to the beginner to make sure that the terminology of a statement is correctly interpreted before he begins his analysis.

Permanency and regularity in the payment of dividends, rather than irregular payment of large or small dividends, as earned, are always indicative of a sounder financial policy. Fluctuations in earnings cannot be prevented and to exhaust all margins undermines both the credit and the margin of safety, which is insured to the creditors by the policy of paying a moderate conservative dividend and conserving the large surplus of “fat years.” The closed corporation, too, controlled by a very few shareholders, which might safely follow a different dividend policy where no funded debt exists, does not concern the investment security holder and need not be discussed here. Even in corporations with wasting assets, as lumber companies, mining companies, etc., this rule cannot be disregarded. While the final exhaustion of resources makes necessary a provision for the return of all capital invested, the portion returned as capital must not be considered as a part of dividends. If no sinking fund is being accumulated for the final retirement of capital, this deduction should be made from the dividend and should be

¹Robert H. Montgomery, *Auditing, Theory and Practice* (1912), p. 184.

correspondingly large. The practice of departing from this rule by the payment of dividends in order to secure appreciation in stock prices for speculative purposes will, of course, immediately rule any security out of the investment class if it ever belonged to this class.

Dividends may also be paid out of accumulated surplus or from the sale of assets at more than their par value or book value. As this latter is a sale of capital assets, and also not derived from earnings, it should be made distinct, as already indicated, from income derived from earnings. It is questionable, however, whether dividends should be paid out of surplus, except at rare intervals. Frequent recourse to this procedure would at once make the credit obligations of such a corporation a speculative issue.

Surplus is placed in the property and is for all practical purposes the same thing as a direct capital investment. Withdrawal means a weakening of the corporation and is a poor practice, except where savings bank requirements, etc., must be maintained because of the company's credit. This is, however, justified only where it will not be repeated. The payment of stock dividends out of surplus is of no material difference to the investor, for the payment of a lower dividend upon a large amount of capital does not disturb his equity. Capital stock and surplus representing capital assets have only been consolidated into the one account of capital stock a procedure which does not change the amount or character of the capital assets. Many creditors always look with suspicion upon the safety of their holdings whenever a capital stock dividend is paid. This attitude is without foundation.

Surplus, it has been emphasized, does not necessarily mean cash, even where a surplus balance is carried forward to the end of the year. Corporations have not infrequently borrowed under these conditions when a large investment was tied up in inventories, receivables, etc., in order to pay their dividends. When future cash earnings are soon available, as in the monthly receipts of telephone companies, there may be justification in doing this; as a rule, corporations following this policy have sooner or later suffered from the result. Especially is this true

where net current assets form a large ratio to the total capitalization. To still further weaken an already strained position, is to expose this corporation at its most vulnerable point.

In studying the cash and dividend position of the company, a check should be made with current assets and liabilities and the future cash demands for the year. These needs may be imperative; for example, a corporation may have had large earnings, but a sudden slowing up, at the end of the year and continuing through the next year, would call for a considerable drawing upon resources, especially if the ratio of current liabilities is large. Even normally the future current liabilities should be closely studied before finally passing upon the dividend policy. A corporation may also be prevented from taking advantage of the purchase of materials, if its cash is depleted. When betterments and extensions are being made, an added burden is placed upon cash requirements which must be checked with even greater care.

One of the surest tests of the character of a corporation's financial policy is its distribution and application of funds applied out of surplus earnings to expansion. While it is assumed that the equity back of an investment security is sufficient at the start, the enhancement of the holders' securities and the danger against lapses is insured when liberal allowance is made from earnings to finance new projects. Sound financing requires carrying loans to a maximum point of safety, but corporations which have financed all expansions through loans have never enjoyed the financial strength of those corporations which have diverted a portion of their earnings to new expansion. Distinction must be made between the betterments which will bring immediate returns and those from which the return will be spread over a long series of years. As a rule, the former should be largely financed out of current earnings, and the major portion of the latter from the bond issues. For a further consideration of surplus the reader is referred to the discussion of surplus in the previous chapter.

Statistical Units of Measurements Used in Analysis.—The use of statistical units of measurement is coming into such general practice, especially in relation to income that a word of

comment concerning their possibilities and limitations seems necessary. The large amount of data needed to establish and to prove statistically a certain standard correct, places a decided limit upon the number of standards which have been adequately tested. Large organizations and associations to whom sufficient original data are available must do this for future scientific purposes. Despite rigid requirements, there are a few very useful standards which will be found in subsequent chapters. As is often implied in these pages, in no single instance, however, should a single one of these units of measurement be used as giving final evidence.

It would be impossible to detect with one or two units either the possible variations or the existence of other influences that might wholly destroy the value of any conclusions that might be drawn. This is a common error, emphasized, for example, in the use of public utility statistical data, where units of measurements that are meaningless can so easily be devised. Even where a single standard unit has long been accepted as the basis of accurate measurement, conclusions from it may be entirely misleading unless qualified. Though a complete survey or list of the standards that have been used cannot be given in these pages, three or four are sufficient to indicate their possibilities and limitations. Others will be given in subsequent chapters.

Innumerable uses have been made of illegitimate standards, and especially of a number of perfectly absurd standards that have been created by the individual with the one idea of measuring all things by this one rule. Apparent though it may seem, the character of the standard used needs greatest emphasis. Certainty of its accuracy must be assured, and its test must be sufficiently wide to make certain that a real standard is being used. A unit superficially tested has often proven quite accurate in two or three cases, and when applied to a wider range of tests has completely broken down. Correctly used, nothing can give so comprehensive an understanding as an accurate standard unit of measurement.

Such frequent mistakes are made in comparative analysis that care should be taken that similar things are compared. It

is entirely wrong, for example, to compare the earnings per mile of a coal-carrying road with the earnings of an agricultural system. A packing company giving short term credit cannot be compared with one manufacturing heavy farm machinery and giving long time credit. The capital problem of a mail order house cannot be compared with that of a steel company or the latter with the problem of an oil producing concern. Comparisons estimating future growth on the basis of what certain other companies in similar businesses have accomplished are even more misleading. Simple and obvious as this is, it is so suggestive a selling point and so readily accepted, that it is at the present more widely used than ever. Circulars, especially those offering speculative issues for sale, make this unwarranted claim of guarantee.

Opposed to these general contentions for accuracy of the criterion used, there are certain criteria which are known to be incorrect, because incomplete, but which help in obtaining the first general estimates. If the ratio or result obtained for the company considered is somewhat near that of the accepted standard, it at least warrants a further examination of the property. Or, where sufficient other evidences of the company's condition are had, it may be accepted as an additional, though qualified check of the company's status. A good illustration of this is the generally accepted percentage of costs of conducting business to gross sales in certain retail businesses, or the overhead costs and selling costs of a manufacturing plant to the price of the article.

In railroads the mile unit of track has probably been the longest established, and is the most widely accepted of the standards of measurement. The magnitude of the sums involved in railroad finance, the great difference in the total business done, and the difference and changes in the mileage to total earnings, make any comparisons of a railroad's own earnings from year to year, and especially comparisons with other roads, vague even to an expert unless they can be reduced to some common unit. When tonnage, earnings, maintenance, fixed charges, etc., are reduced to the basis of the amount per mile, financial results are put in such a form that a comparison can be made with any

system, regardless of the size of business or mileage. It is indeed doubtful if a railroad report is ever fully understood, until it has been reduced to this common basis of analysis.

The so-called operating ratio, one of the more common forms of standards of measurement used in the analysis of public utilities, has been subject to much abuse. The operating ratio is obtained as follows: the gross revenue is given a standard of 100 per cent, so that the difference between this percentage and the percentage of total expense gives the net gross expense. Any type of business which has a high operating cost, other things being equal, has a small margin upon which to insure itself against a depression of business. In such a business, certain years would yield very large profits and in others the margin of gains would be very small, a condition making it unsafe to carry a very large fixed charge. With a low operating ratio the reverse would be true. As the amount in the fixed property account increases, it will normally be found that the operating ratio decreases in the corporation which can be classed in the investment group of corporations.

The operating ratio is of the utmost significance when it is considered in relation to the other accounts of the company. Considered unrelately, it is meaningless. Unfortunately, it is most frequently used in this way. For example, one company in a recent annual report shows an operating ratio of 45 per cent of gross returns and another 60 per cent, although the net return per mile of street car track of the latter is larger than that of the former. This is explained by the fact that the total capital investment per total gross earnings is much lower in the company with the large operating ratio, a fact which at once destroys the value of any comparison of the operating ratios of these two companies not taking this into consideration.

It is possible for a company to increase its traffic by lowering its rates, thus increasing its total net earnings, though the operating expense has increased. A low operating expense may mean that the rates are higher, or service is unsatisfactory. Where fares are low, the operating ratio may be high, though the cost per car mile be very low.¹ Long hill climbs and more

¹The cost of running one car one mile.

widely dispersed population may again so increase the operating ratio that a well managed company would seem badly managed, though its net profits are high and vice versa. Great density of traffic and low fixed charges in several cases permit high operating rates and yield good returns. A very heavy fixed investment in purchases or improvements that reduces the cost of operation, will reduce the ratio of operation, though it is possible that the cost of the fixed investment, as found in a few companies, was not only unwarranted, but has placed a heavier burden on the company in fixed charges than the larger operating ratio would have been. A lower operating ratio would then belie itself.

A very common unit of measurement used is the number per capita to consumer, mile of track, kilowatt capacity, etc. Correctly used, this gives one of the most accurate means of determining efficiency, earning strength, and future possibilities of the company. But, while every public utility analyst recognizes the importance of the number and density of population upon the amount of income, other variables may largely counteract this advantage which a company may possess. There is, for example, an interurban in the Middle Western states which has a population per mile of track equal to three times that of an interurban railway in a neighboring state, but the former has lower gross earnings than the latter. Another system in the same territory with one-fifth the number of inhabitants per mile of track, earns three times as much. The population adjoining two of these companies evidently takes either longer or more frequent rides, or both. Normally, it would be expected that the railway with the greatest population adjoining its right of way would show the largest earnings. But an examination of the operating revenue, amount of funded debt, etc., shows an entirely different relationship in the three companies. The number per capita per "other unit" may be large, but if the population is closely concentrated or a limited amount of riding is necessary, or the riding habit has not become prevalent among a large part of the inhabitants, the company will not show large earnings. Mere per capita numbers will not reveal these facts.

Again a certain electric light, power and railway company last year made the statement in its annual report concerning its electric light proceeds, that earnings had been increasing faster than population. This does show an increasing strength on the part of the company, but it does not mean all that a superficial examination would purport to convey. While the total amount of gross earnings is growing faster than the total population, the ratio of increase of the former per capita is less than it was eight years ago. In this instance the larger consumers are fewer and the number of small consumers are the chief source of the increase. This will eventually mean a decrease in the ratio of net earnings unless operating expenses have been correspondingly cut down without sacrifice to the company. A number of companies with a net per capita decrease and a reduction of operating expenses through permanent economies, have succeeded in building up a larger permanent net profit which offsets the objection to the per capita decrease in the company.

Another illustration of a statistical unit of measurement is the so-called "rate of turn-over of working capital," *i. e.*, the ratio of gross sales to the working capital carried during a given period. This average is based upon the average amount of working capital carried during the year. This measurement is sometimes made to the total assets, but this is not so accurate. More use can be made of this unit in commercial establishments than in manufacturing concerns. Where the operating ratio has been the predominant standard measurement used in public utilities, "the rate of turn-over" has been used in commercial corporations. And in proportion to the amount that any corporation has its funds invested in working capital, it is interested in the problem of turn-over. If, of course, long time credit can be procured and goods sold on short time credit, the necessity of working capital would be of little importance. On the other hand, the more rapid that the turn-over can be made, the smaller will be the amount that the company will have to carry in this form of capital. In the case of the manufacturer, the rate of turn-over is largely determined by the period needed for production. If it is a long period, the increase of vol-

ume will not increase the turn-over beyond a certain point. If the rate of turn-over in the business falls short of the normal rate, it will reveal one of two things: either that the management has failed to appreciate the necessity of taking small profits to increase the volume of sales, or the sales department is weak. This unit offers an excellent check on efficiency.

A form of measurement that is employed in the companies in which the rate of turn-over to working capital is used, is the ratio of working capital to the total capital, and also the ratio of the items constituting working capital to each other.¹ In industries of a similar type, the proportions of working capital to the total capital should be confined to proportions of fairly narrow range. When comparisons between companies are made, a strict classification of similar types of companies must be assured, for a difference in even a considerable production of by-products will make a difference in these ratios. Where the term of credit is short, the period of production is short and turn-over quick, and the terms of purchase short, the corporation is not seriously set back by seasonable changes, for if financial pressure is imminent, its stock can be quickly disposed of.

¹See chapter xxvi, on Industrial Bonds for a detailed discussion of the relation of the items that make up working capital.

CHAPTER VI

NEGOTIATION AND ISSUANCE

When the directors of a corporation or the officials of a civil division decide that it is desirable to secure additional funds, the character and amount of the funds that can be obtained to the best advantage are dependent upon the many conditions discussed throughout this volume. Discussion of this whole problem, then, is eliminated here and only some of the typical methods by which these funds may be raised and the procedure by which the issue is created are considered. The details of negotiation and issuance vary widely in practice, though the important underlying requirements are much the same.

The borrower who seeks to obtain funds at the best advantage realizes that certain methods and types of securities serve particular purposes. The plans generally followed are: First, where funds are wanted only for a few weeks, they are procured from a bank either on personal credit or through a loan made on the security of current receivables (accounts or notes receivable) of the company. Second, where the company desires the use of the funds for a few months, a more formal issuance of notes is made. While notes, usually constitute a general claim against assets which corresponds to the lien of debenture bonds, not infrequently specific assets are placed in security. In industrials, current receivables are most frequently used. Notes are often employed as a temporary expedient to secure the use of funds needed immediately, until a more favorable market exists to float a long time loan. In civil divisions, the resort to temporary loans is made through the issuance of warrants, commonly called "anticipation warrants," which are claims against the future funds that the municipality or other civil division acquires through taxation. Third, the long time

loan is issued in the form of bonds, the security for which is a common mortgage against specified property of the corporation or the general taxes of the civil division. Legally, there is no distinction between the second and third plans, and as a matter of fact, with corporate issues, duration is the only claim to real distinction.

Where the risks are greater, or the possibility of risks exists, or the management wishes to continue its present control, stock issues are used instead of loans. This gives the corporation the advantage of never being in danger of foreclosure. If the risk is great, a bond issue would also have a wide range in price and would be more likely to prove a serious hindrance to the corporation's current credit needs. This does not argue, however, that a great many of the outstanding stock issues, especially preferred stocks, are not a very much better purchase than many bond issues. A more ready market due to higher rates has often made it more advantageous for small corporations to issue stock.

Authorization of the Issue.—The first step in issuing bonds, notes, or mortgages, is to secure the legal authority to make the issue.¹ The law very definitely stipulates for both private corporations and governments the source of authority and the rights, powers, and limitations which are placed upon the exercise of this privilege. The legal counsel of the banker must consequently use the greatest care in ascertaining whether all legal requirements have been fully met.

In the issue of bonds by a corporation the board of directors takes the initiative in proposing an issue. After the board of directors decides to make an issue of bonds, notes, or mortgages, and officially acts upon the issue, it is better practice, and is required by the statutes of some states that the stockholders approve the issue, although in the absence of statutes the directors have the power to issue bonds for corporate purposes. In addition to this, railroads, as well as other public utilities,

¹Thomas Conyngton, Revised by H. Potter (1919) *Corporation Organization and Management*, chapter II, particularly sections 381-382. This text gives a good summary of the manner of authorization and issue.

practically always must obtain permission for any issue of securities from a public utility or railroad commission. The blue sky laws of the state involved should be consulted, although owing to the newness of the blue sky enactments, and their probable development within the next few years, no definite statement is attempted here. The completeness and accurateness of information demanded by the respective states vary widely and still lack standardization. A recital of the compliance with all these requirements should be included in the mortgage.¹

A corporation has the right to issue bonds or notes for any purpose which comes within its right of contracting a debt. This right to issue securities is an implied power of the corporation and need not be stated in its charter, but restrictions upon the power, if any, in the charter, the state constitution, the statutes, or the judicial decisions, must be carefully observed. If any securities have been issued in violation of such restrictions, the Courts have usually decreed them void. If it was an intentionally fraudulent issue, the officials or stockholders are held personally liable. If the stockholders are required to give their assent and have not done so, neither the corporation nor the bondholders have any recourse in holding the stockholders accountable for the validity of the issue.

The authorization of state and municipal bonds is made by the legislative body of the state or other civil division, subject to the regulation and limitations of the state constitution and its revenue statutes. When the proposed issue is passed by this body, it then must usually be approved by a certain number of the voters of the civil division making the issue, the details of the procedure being fully covered by statute. In a few states the legality of the issue must also be approved by the State.² It is now rare that a minor civil division must secure legislative action for a particular issue.³ The authority to make the issue

¹See chapter vii, Corporation Mortgage.

²See chapter viii, Registration, Transfer and Assignment of Securities and Their Validity and Legality.

³Such requirements as advertising prior to accepting bids, proper notification of voting, provisions for interest charges, and of the principal at maturity, etc., illustrate the character of the legal requirements made by statutes.

having been secured, the corporation or municipality can either proceed to dispose of its own securities or to procure the services of a banker to undertake the marketing of the securities.

The Investigation.—After the corporation or civil division has decided to issue securities, a banker must be found to handle the financing, unless the officials of the respective organizations decide to have the corporation do its financing direct. After a banker has been found who will listen to the proposition and to whom it appeals as a desirable one, a preliminary investigation is made to ascertain whether the proposition shall be given further consideration. Where the original evidence furnished is complete enough or the banker's previous intimacy with affairs justifies, the preliminary investigation is passed over and the more complete investigation is immediately undertaken with the agreement that the securities will be underwritten by the banker if the investigation proves the original facts to be as represented.

The investigation will follow four main lines: (1) of the legality; (2) of the financial status; (3) of the physical properties; (4) of the management. The lawyer must make a complete examination of legal points involving authorization of the issue, the rights, forms, etc., for, regardless of how strong financially the corporation may be, a legal error might nullify the issue. To the accountant is submitted the task of making a complete audit of the company over a period of years to obtain complete information concerning its financial condition. The engineer makes the valuation of all physical properties, patents, costs of construction, etc., and the effect of the present management's policies upon the plants. The personnel of the management is thoroughly investigated, and where it is a corporation coming under regulatory power, as a public utility, the policies and rulings are examined, particularly in relation to their effect upon the earnings of the company. In short, this investigation is based upon the underlying principles laid down in this text. When these reports have been made to the banker, he correlates the facts submitted to him from all sources and analyzes them and checks them against his previous experiences. Where the municipality and the laws of the state are well known, the

banker only examines the statement submitted by the auditor of the municipality to see whether the municipality has conformed to the debt limit, tax rate requirements, etc. When the allotment has been made to the investment house, its counsel rechecks the legality of the procedure. The right to pass upon the legality of the issue is the qualifying condition of the bid allowed the banker. If the legality of the issue is approved by counsel, the issue is accepted by the banker.

A banker, even though he finds the security meets all the requirements of an ideal investment, must determine the answers to two other questions. The first is purely an individual and personal one with his institution; the other is of general importance. First, is this the type of security which he can sell to his clientele? Second, what is the market for securities at this time; can it readily absorb the issue in question? Does the market favor the type of security to be issued? Corporations and bankers consider this so important that provisional means are used in securing funds where their need is imperative, in order to await a more favorable market. The War experiences have given innumerable illustrations of corporations forced to make temporary loans.

Before the banker can proceed to offer his securities for sale, two other important steps must be taken. A trustee for the mortgage must be procured, and the instrument prepared and printed. The mortgage upon which the bonds are issued is deposited with a trustee, usually a trust company. This trustee receives all interest payments every six months from the corporation, and repays these amounts to the bondholders, as well as the principal when it is due. The trustee also certifies that each bond issued by the corporation is genuine and that the amount issued is authorized. The trustee also is the common representative of the bondholders, and if the corporation violates any part of its contract in the mortgage against the interests of the bondholders, the trustee takes legal action as their agent. If any interest payments or principal are not paid, the trustee also brings foreclosure proceedings as representative of the bondholders.¹ This procedure of trusteeship,

¹See chapter vii, for a more complete discussion of this topic.

of course, does not apply to civil loans, which do not have a mortgage security.

The necessity of a careful preparation of the instrument which is the evidence of the holders' claims is important, both to insure that it is legally correct, and to prevent counterfeiting. The stock exchanges now, without exception, require that all bonds listed and passing through the exchange shall be certified as to genuineness by a trustee. When the instruments have been properly checked, signed, and the seal affixed by the corporation, and then certified by the trustee, they are returned to the issuing corporation who turns them over to the banker to be sold.

Distribution of Corporate Securities.—There are three general methods for the distribution of corporate securities. The first method is by allotment to the present security holders, usually at a lower price than the existing market price. This method is more frequently used in the distribution of common stocks, than either preferred stocks or bonds. In the issuance of bonds, this method is used only where the company has either become involved and the securities would have to be marketed at a great sacrifice, or where it desires to give the existing holders the advantage of securing additional holdings in the company. The former, of course, does not concern us in a study of investment securities, except as it illustrates what the investment purchaser should avoid. The latter is more frequently practiced by small and closely controlled corporations, though subscriptions are now frequently given in all classes of corporations.

The second method of selling securities directly to the public is, like the former method, handled exclusively by the corporation. This method has also been used by a few of the municipalities. Only in rare cases of small issues, in a local market, has it been successful. Where the issue is too small to bear the expense of the investigation and underwriting, the corporation is compelled to sell its own issues, though neither corporations nor municipalities have the selling organization that make quick sales possible. There are few undertakings of either a corporate or municipal character which can advantageously use funds that are received over a long period of time and in small

amounts. Permanent improvements call for contracts with large immediate outlays. A few isolated cases of the sale of municipal securities over the counter of a municipal-treasurer have met with success and resulted in a saving of considerable expense. The successful attempts in this method of marketing are, however, too few to prove anything. In the majority of instances, it has turned out to be a costly method of distribution.

The most economical, consequently the most effective, form of distribution as yet devised, is to have some banker or group of bankers underwrite the issue. When an individual bank carries on the transaction, the sale is then made by the corporation or civil division to the bank, which sells them directly to the public, through its own sales organization. The listing and sale of securities on the stock exchange is usually not made until at least a majority of the original securities have been sold. When either a single bank underwrites and redistributes to a group of bankers or a group of bankers assume an equal interest in the issue, the underwriting is termed syndicate underwriting. The purpose of the latter method is to distribute the risk, that is, it is an insurance against any direct loss from being compelled to carry the securities for too long a period—but more especially, it eliminates the risk of selling by securing a wider market and, consequently, quicker sales.

An underwriting by a banker insures the selling of the securities of a municipality or corporation, and allows the municipality or corporation making the issue to proceed with its expansion or construction plans without the possibility of any delays. The investment banker is enabled to advance the money, as he can use the securities being offered for sale as collateral for loans. A long delay in the sale of securities will seriously impair a corporation's credit. The underwriting also gives the corporation or municipality the advantage of the banker's experience in avoiding mistakes in legality, validity, form of issue, price, etc., of the security issued—matters all of which are to the advantage of the purchaser.

There are four types of syndicating used. The first three are based on direct purchase; the fourth, which has practically

been discarded, provides for a guarantee of sale. The most common method now used is an agreement between the syndicate and the corporation by which the members of the syndicate receive directly the allotment of securities which they have agreed to sell. Each member then proceeds to resell his securities on any plan he chooses to follow, independent of the syndicate. No agreement of the syndicate, however, such as not to change the price agreed upon can be violated by an individual member of the syndicate. A second type, sometimes called joint account¹ as opposed to the joint syndicate, is an agreement between a single banking house and a corporation. The bank then induces other banking houses to take a portion of the securities, and the bank thus reduces its own risk. In the third form of syndicate, the agreement is made between the syndicate and the corporation. One member of the group is made syndicate manager, usually the house originally interested in forming the syndicate. In a number of these syndicates, no actual distribution of the securities has been made until at least a major portion of the issue has been sold. The fourth type of guarantee of the sale, is the older and original method of syndication practiced, which is now rarely used. The banker either guarantees the sale of the securities at a price, or if the securities are not all sold at a given date, he agrees to take the balance at a stated price, which usually is lower than the original price paid. This allows the corporation to use its discount privileges, if it so desires, on these unsold securities. It is in the understanding of the market that a banker's office can render valuable service to the corporation. A security that does not find an immediate market is quite likely to impair seriously the corporation's credit, as well as involve considerable direct financial loss.

Syndicate agreements are formally drawn up and signed by the participating members. In small syndicates the agreement is not infrequently made orally. The main syndicate agree-

¹Hastings Lyon, *Special Report on Joint Account Letters and Forms and Some Considerations of the Law of Joint Account to the Investment Bankers' Association* contains an excellent statement on the Joint Account. (In I. B. A. Bulletin.)

ments include: (1) a brief statement of the requirements which the member must fulfill; (2) the limit of the member's liability to the amount he subscribes; (3) a brief description of the security; (4) the details of management, and (5) a statement of prices, etc., and the duration of the syndicate. If the syndicate has not completed the sale of its securities within the allotted time, provisions are usually made for its extension. A few syndicates have lasted for several years. Informal as some of the syndicate agreements have been, there is seldom ever any disagreement that leads to litigation.

Commissions to the banker for conducting the syndicate vary widely. As the commission ascends, the chances are that the security enters to an equivalent degree into the speculative class. This is especially true where bonuses are given to the syndicate. Additional profits are sometimes realized by members of a syndicate when the securities are all taken up and temporarily held for a better market. The large carrying charge seldom warrants this, except in speculative underwritings.

A very small proportion of bonds issued are bought and sold on the exchange, though there are a considerable number of issues listed. The permanency in the large holdings of bonds also leaves only a small ratio of bonds which reappear on the exchange. It has been estimated that only about one-tenth of the Government bonds sold prior to the War passed through the exchange. Where syndicates are formed for the distribution of state and municipal securities, the procedure of organization is similar to that used in some of those organized for underwriting corporation securities, and needs no further comment. Because of these conditions, there is little object in listing any of the smaller issues.

This latter situation, especially, necessitates that the banker shall sustain a market for the securities which he has underwritten, or offered for sale. Not infrequently the purchaser of a bond, who, at the time he bought the bond, had no intention of selling, is forced to dispose of it. The banker, in order to maintain the highest reputation for his securities, must either create or provide a market for these securities. If the holder,

who naturally turns to the banker who offered the securities, cannot find a market with the latter, he will be forced to throw it on the market at a very large sacrifice even though the underlying value is sound. In this very legitimate practice of providing a market, the banker is performing a valuable service, not only to himself, but to the corporation and the investor. As referred to elsewhere, this legitimate sustaining of a market must be distinguished from a market which is sustained for the purpose of hiding a weak corporation. Bankers of doubtful repute have been known to force up the price of some of their offerings in their own office, five to ten points over night, but these were speculative securities, and not investments.

When the offering is large and widely held, an active market is automatically established and the banker will not have to sustain the market, except where a corporation has come into a weakened condition. If this condition is only temporary, it need not give the holder of an investment security any concern. If it is a permanent change, then the holder of these securities should closely watch the corporation's condition, as any sustaining of the market is fictitious. When the issue is small or inactive, a forced reappearance of some of the bonds on the market may cause a depression of the price though the corporation's condition may have been materially strengthened since the original issue. It is quite evident that unless the banker does provide for a market for these securities which are sold again, all interests must suffer a loss despite the character of the security.

Lastly, a new type of agreement which cannot yet be said to be established is developing; namely, the relationship between the bond departments of banks in large cities and the banks of small cities and towns. While it is true that this practice has already been established, it is relatively as yet very insignificant. New sources of capital for the commercial and industrial development must be secured. Why go abroad if it can be secured within our own borders? Some of the agricultural states, for example, of the Middle West now accumulate surplus funds every year. The most economical method by which these funds can be secured is through the local banks of the territory. The

banks know who possess funds and the expense of this selling method in rural territory would be more economical than the employment of special salesmen to sell direct to individuals by city banks. While a small commission is now allowed these so-called small city and country banks, in the very near future, the stronger of these small banks or a number of them together are going to demand a certain participation in the syndicate. How soon this will take a more definite form or what the definite form will be, it is too early to say. There is, however, no question that this demand is now beginning to take a definite form.¹

Distribution of Civil Loans.—The Federal Government during the War gave up the sale of its bond issues by syndicates.² Prior to the European War, announcement of a loan was publicly made by the Treasury Department, and bids requested. Subscription blanks were filled out and a cash deposit required, except in a few instances where the market would have been greatly affected. After the bids were closed, the list of the subscribers allotted their subscription was sent out. Temporary certificates were given with the final payment of the subscription. The subscription to the Liberty Loans was somewhat different. The huge sums needed necessitated organized campaigns with which all are so familiar that it is not essential to give the details. All subscriptions of small amounts were allotted for the purpose of popularizing the loans.

The states follow much the same method as that formerly employed by the Federal Government, in requiring the submission of sealed bids. While in the main this is also the method of the minor civil divisions of the state, the actual practice varies between civil divisions in the same state, except where

¹Another form of marketing securities which has been used by a few public utility corporations, is the selling of securities directly to their own customers. This practice possesses large possibilities and will increase. It also has the advantage of closer co-operation between the public utility and the public which is of paramount importance to any utility company.

²The Federal Farm Loan Bank bonds issues and the issues of the Joint Land Bank organized under the Federal Act have all been underwritten by private bankers, but they cannot be considered as direct issues of the Federal Government.

statutes require uniform procedure. The listing on the exchange is not done, as a rule, until the major part at least of the underwriter's original offerings have been marketed. It is always necessary that an investment banker protect his market against the speculator during the period of original sale. Any movement started at this time that would move the price a fraction below the offering price of the underwriters, would destroy the market for the latter. And this depression in price might be effected by the speculator in trading purchases which would not necessarily be any reflection upon the original price made to the public.

Mr. Hastings Lyons explains the method of creating a market for listed securities as: "Building a market, in the sense of establishing a course of trading is much like building an arch; if the process is complete, the market will support itself. A buying demand will exist sufficient to meet without breakdown any pressure to sell. The bankers who brought out the issue can now welcome the speculators; every speculative purchase and sale means one more transaction to help make the market more active and therefore more stable."¹

When bids are made by a bank for a civil division issue, they are made either in whole or part. A bid is frequently made by a banker with the qualifications that the bid is made only for the whole of the issue or a particular portion of it. The highest bidder receives the allotment, if all the requirements of the advertisement have been fulfilled, though the highest price bid for a portion of the issue might not be taken, as the remainder might have to be sold at such a price that the total net price would be lower than that if a lower price were taken for the total block of bonds. Bankers also sometimes give different bids for various amounts of the issue. Bids must usually be accompanied with a deposit and be sealed. If an allotment is made and the bidder fails to take it up, his deposit is forfeited. On the other hand, the bid is always qualified by the provision that the issue has met all legal requirements. A few issues have been sold directly to the public by

¹Hastings Lyon, *Corporation Finance*, Part II, p. 160 (1916).

the officials of the municipality. This is still of infrequent occurrence and has not always been successful.

When the award has been made the proper officials of the civil division submit a complete set of transcripts to the bank allotted the bonds. These transcripts should contain every step taken in marketing the loan up to the actual awarding of the bonds. When the legality of the bonds has been approved by the counsel of the bidder, they are then accepted and the official imbursed for the bid. As approximately twenty-five per cent of the civil loan issues originally bid for are rejected, because of legal irregularity, the importance of this qualification is apparent.

*New York Stock Exchange Rules for Listing.*¹—One of the most effective forms of legal protection in forcing the proper issuance of the mortgage and bond, has been the Listing Rules of the New York Stock Exchange. While the direct purpose of the Exchange has been to insure perfect freedom and safety in trading, the protection given the security has been no less important.

The more important of the advantages in listing are the wider and freer market, greater stabilization of the price of the security, greater convertibility and wider and cheaper hypothecation. Incidentally, with these advantages, are procured additional sanctions as to the legality and certification of the mortgages and bonds, together with certain public corporation reports. An even more important protection—one against fraud—exists in the exact regulations which the members must meet in dealing with their customers. No less important is the stabilization it creates for securities in the privilege it

¹The New York Stock Exchange Rules for Listing are given in preference to any other of the Stock Exchange Rules, because of the large number of securities listed. The rules of the other Exchanges have been closely modeled after those of the New York Stock Exchange.

For complete description of listing and stock exchange transactions see the following: *Hearings before the Senate Committee on Banking and Currency*, S. 3895, 63d Congress, Second Session; Sereno S. Pratt, *Work of Wall Street* (Revised, 1920); W. C. Van Antwerp, *The Stock Exchange from Within* (1919); S. S. Huebner, "The Scope and Functions of the Stock Market," *The Annals of American Academy of Political and Social Science*, vol. xxxv (May, 1910), pp. 1-23. (See index of same volume for other articles.)

permits for more easily discounting the future and the creation of a constant flow and outlet for corporation capital. These rules directly affecting the security, whose compliance must meet the approval of the Listing Committee, are summarized as follows:

The papers to be filed with the application for listing, probably give the most comprehensive view of the requirements of this Committee.¹

(1) The instrument or instruments representing the rights of the holder must contain a complete recital of these claims. Seven copies of the mortgage are to be filed, one to be certified by the Trustee. Rights of registration, transfer, conversion and interchange of bonds, whether registered or coupon bonds, general statement of lien, the amount of the issue, the dates and parties of issue, denomination, rate of interest, any sinking fund provisions, any convertible privileges, the time, the place, notices and conditions of redemption are to appear on the bond. The power of assignment, according to a form approved by the Committee, must be given for registered bonds. When interchangeable, the rules state: "When a mortgage or indenture provides that bonds may be issued interchangeably in coupon and registered form, each registered bond issued thereunder shall bear a legend reciting the number or numbers of the coupon bond or bonds reserved for exchange of such registered bond." When coupon bonds are issued in denominations of less than \$1,000, and they are exchangeable for \$1,000 coupon bonds, the smaller bonds should contain the legend granting this privilege. They are further designated by a serial number.

(2) The Listing Committee, in order to have some proof of the legality of the issue requires an opinion of the applicant's counsel as to: (a) organization, and (b) validity of the issue; (c) all the papers covering the authorization of the issue; (d) the certificates of the public authority; (e) certificate of the registrar's present registration.

(3) The committee recommends that a different trustee be appointed for each indenture, though this has not been enforced

¹See Stock Exchange Listing Rules for complete details of the Committee's regulations.

where impractical, as in consolidations and mergers. No official or representative of a corporation shall be made a trustee for the company's own mortgage. The trustee's certificate shall cover: (a) the acceptance of the trusteeship, (b) "the issuance under the terms of the mortgage or indenture with the number, amount, etc., of securities held, and (c) the cancellation or cremation of deposits of underlying securities prior liens, etc.," and (d) a copy of the resolutions covering the appointment of the transfer agent and registrar.

(4) The mortgage instrument, in addition to the details included in one, two and three, must include a detailed description of the lien approved by the Committee; this description covers franchises, land, buildings, equipment, right of ways, leases, other privileges, titles, guarantees, etc.

(5) When a corporation applies for listing its securities, it must agree: to dispose of any of its property only on authorization of the stockholders; to make an annual report fifteen days before the annual meeting of the stockholders, to maintain a transfer and registry office or agency in the Borough of Manhattan, New York City; to give ten days for the closing of the books; and to notify the Stock Exchange of any rights or issuance of rights or subscriptions.

(6) The Committee requires that bonds and coupons shall be printed by an engraving company approved by it, according to specified rules.

(7) In addition to these conditions, other important requirements are statements of: the purpose of listing, a report covering all the details of the corporation's charter, original organization, character of business, and subsequent financial history, including details of any reorganization and practices, or mergers; its present financial status; a complete description and engineer's report on its physical properties; detailed character of its liabilities; details of contracts with other corporations or individuals; names of the officials and transfer agents, trustees, and registrars; location of its offices, time of meetings, etc.

CHAPTER VII

THE CORPORATION MORTGAGE

The mortgage is defined as the instrument which secures the principal and interest of the bonds by pledging specified property. It may cover property to be acquired, and the general assets of the corporation. It usually is in the form of a conveyance to a trustee and is known in that case as a trust deed. The bonds are described in, and secured by the mortgage or trust deed, and thus become the legal representations (*i. e.* of the bondholders' claims) of the rights stipulated in the mortgage or trust deed. In any variation between the two instruments, the bond has precedence, as the mortgage or trust deed is dependent on the bond and can have no existence except as security therefor. In this connection, it must be recalled that by the common law a note or bond was negotiable, while the trust deed was not negotiable, with the result that in a suit upon the debt in the law courts by holders in due course, defenses could not be interposed against such holders, which could be interposed against them in a foreclosure proceedings under the mortgage. This undesirable situation of the common law has been quite generally altered by legislation to the effect that when any negotiable instrument is secured, defenses cannot be set up in a suit upon the security which could not be made in a suit on the debt.

The issuance of this intermediate instrument grew out of a practical and not a legal necessity. With the growth of corporations, the amount of money needed was more than one individual could advance, or, if he had sufficient capital for the smaller corporation, he was not willing to take the risk of investing all of his funds in one enterprise. To give a fractional claim of a railroad's mileage as security for a bond would be futile to both the railroad and the bondholder. The issu-

ance of a mortgage in security for an advancement of all funds wanted by the corporation and creation of a trustee to act for all bondholders did make possible the issuance of fractional claims against this mortgage, while at the same time it consolidated all claims through the assignment of the mortgage to a trustee. This made possible unified action, and gave some value to the bondholders' claim, and also protected the corporation.

The mortgage, after it has been legally authorized, is a pledge by the corporation of its property, which gives the right to advance funds to the corporation and to seize the property upon failure of the payment of the principal and interest when due. The bonds then are merely evidences of this obligation and the promise of the corporation to pay.

*Limitations of Issue.*¹—The older practice in marketing mortgage and bond issues was to make an issue to meet the immediate needs, though most of the older statutes permitted many of the modern practices. The more recent statutes and practices are tending to a more elastic, yet safer policy—safer if the proper control of the issuance is exercised. Where liberalization is extended which results in larger advantages to the corporations the danger always exists that adequate provisions will not be made to safeguard the investor.

Three general classifications that may be made of mortgages for legal identification are: (a) the closed-end mortgage; (b) the open-end mortgage; and (c) the open mortgage. The closed-end mortgage provides for the issuance of a limited amount which is issued all at once.² This is an older form which gained such favor at one time that all other issues were discarded; it was then rejected for a period and again revived, but is now rapidly passing out of use. A good example of the older use of this mortgage is the liens issued on the Erie Railroad between Jersey City, New Jersey, and Dunkirk, New York. Nine bonds issued by this method, upon this particu-

¹As the Authorization of the Issue has been treated in a preceding chapter, it is not considered necessary to repeat it here, though it should also be considered at this point.

²Mortgages under the above titles are often differently described, and the reader in making comparisons with other authors should bear this fact in mind.

lar mileage, are still extant.¹ In the open-end mortgage, the amount is fixed but is issued in stated or varying amounts, and under conditions agreed upon in the mortgage, which are generally the same as in the open-mortgage.

The open-mortgage² has no limitation as to the amount that may be issued except the agreements in the mortgage itself and the statutory limitations of the particular state in which issued. These issues are still rare, but with the increasing state regulation of security issues, they are the logical development, at least for large corporations. For why should a company be continually asking for new issues if the maximum increase is fixed at two-thirds or three-fourths of the new extension or addition, and interest charges, including the interest on the new issues, must be earned from one and one-half to three times and the certification of the fulfillment of these requirements has been guaranteed by the trustees? The serious criticism which has been made against this method, and rightly so, is the fact that the practice of evaluating and auditing the additions to the physical plant and equipment is not always carefully carried out by the trustee. In practice, very frequently the trustee accepts the statements of the issuing corporation without himself providing for a complete and proper checking of the properties. Greater guarantee of more complete auditing must be insisted upon before this type of issue can be fully accepted by the investor. Where this condition is met, the advantages accruing, both to the investor and the corporation, are greater than with any other type of issue, and sooner or later these protections will be incorporated in mortgages.

The statutes sometimes designate the amount of bonds that may be issued upon a property. The most common limitations are those stipulating the ratio of bonded debt to capital stock and of the bonded debt to the value of the fixed property. The total amount, where a limit is placed on the issue, should be

¹On date of January 1, 1920.

²The strictly open-mortgage (or "open-issue") allows the further issue of bonds with the same lien as the bonds outstanding, so in a receivership all bonds put out at various times are on the same basis. In practice, however, certain values in property must exist as stated above. This technically does place a limitation on the issue.

given in the mortgage. This does not mean, however, that all the bonds shall be issued at one time. The terms of the mortgage may designate that the whole or any part shall be issued at a given time, or a part may be retained to retire existing issues that mature at a later date. Almost any method of legitimate issue may be used as long as it comes within the limits of the authorization. Bonds put out in excess of the amount fixed by statute are illegally issued and consequently void. If the amount issued is not in excess of the amount stipulated by the mortgage, the bondholders have a legitimate claim against the corporation on an equal basis with the other bondholders.

General Provisions in the Corporate Mortgage Instrument.—Though the exact provision in the particular mortgage must differ, the general provisions have been so well standardized that they apply to all mortgages. They are as follows:

1. The date of the issue of the mortgage is given;
2. The parties—who are the corporation as party of the first part, and the trustee or trustees who are parties of the second part and who hold the title for the bondholders¹—are named.
3. The preamble recites the legal status of the corporation; namely, the state in which it is incorporated, and whether organized under special or general laws of the state, by consolidation or other form; its domicile; its capitalization; and the properties owned and leased when included in the mortgage. The purposes for which the proceeds of the bond issue are to be used are set forth, together with the promise to pay the amount of the issue, limitations, and protection against over-issue.
4. A copy of the stockholders' resolutions² and the directors' resolutions approving the issue is included here, and it should specify the officer or officers who are authorized to execute the same. In some states there is added the authority of a state commission for public utilities, and it is well to include before the grant, a clause

¹The rules of the New York Stock Exchange require that no officer or director of the corporation can act as a trustee. Because of the variations in the state laws, which limit the rights of trustees in their jurisdiction of foreign corporations, in many states, where it is necessary to insure against complication with a state over its trusteeship laws, it is well to appoint a co-trustee to act with the trustee.

²Most of the states require a two-thirds vote of stockholders to approve the authorization.

stating that all the requirements of the law in respect to the mortgage and bonds have been complied with in making this issue. The amount, rate, maturity, denominations and whether interchangeable, endorsement, registration, transfer, replacements, execution, etc., are also included.

5. The full text of the bond, an exact copy of the interest coupon, the form of the trustee certificate, and the form of guarantee, if given, and signatures, etc., are presented.

6. A description of the conveyance of the property that is pledged to the payment of the bond issue is given in detail—"the mortgaged premises, generally acknowledging a nominal consideration paid by the trustee to the corporation and reciting the further consideration," etc.¹

7. A complete and detailed description of the property, including franchise, patent rights, trade-marks, etc., is set forth. If stocks, mortgages, patent rights, trade-marks, etc., exist, they are set forth, and the corporation will execute, simultaneously with the execution of the mortgage, to a trustee. If other liens already exist on the same property, they should be stated with their priorities and position, as well as the liens of subsidiary companies.

8. Following the description of the property, a great many mortgages now contain the so-called unlimited amount, or after-acquired property clause, which provides for the inclusion of any property that the company might develop or acquire in the future, during the life of the mortgage, after the corporation has met certain requirements specified in the mortgage. Usually new bonds, under the authorization, can be issued up to a given per cent of the value of the property. In public utilities this is from two-thirds to three-fourths of the value of the property, with the additional requirement that the interest charge be earned a stated number of times.

9. A statement of the acceptance of the mortgage and the trustees' duties, rights, and obligations, and provision for his certification and the agreement of the cor-

¹The trustee merely holds the property and exercises control in behalf of the bondholders under the mortgage. If the conveyance is in the form of such collateral as stocks and bonds, they are delivered to the trustee. The voting, payment of dividends, etc., are provided for in the mortgage.

poration to convey the mortgage to a trustee are also included.

10. A covenant by the company to pay the principal and interest when due under specified conditions stated in the mortgage is given.

11. Provisions are made for the place, method and medium of payment and the registration and transfer, number, signature and authentication of both the bonds and coupons, the certification by a trustee, the attaching of the official seal and issuance, mutilation and destruction of temporary certificates on the mortgage. Provisions are made also for the cancellation of coupons and bonds when due and the method of delivery to the company.

12. The mortgagor agrees to maintain the lien, to pay all mechanics and labor and other prior claims in order to maintain the mortgages' priority, taxes, assessments, governmental charges, insurance, etc. Since the adoption of the new Federal Income Tax Law, the tendency, especially in the large mortgage, is to require persons entitled to interest to furnish the proper certificates showing compliance with the law in order to protect the company against any liability for the payment of these taxes.¹

13. It is customary to include an agreement to keep the mortgaged property in good condition and properly to repair and replace all worn-out equipment.

14. When a sinking fund provision exists, the manner in which this fund shall be accumulated and the details by which the plan shall be carried out are given.

15. Where the mortgagor is to have the option of calling the bonds upon any interest date, or the bonds are to be retired by serial payment, the manner and time of notification, of payment, etc., are stated.

16. If a part of the issue is to be used in refunding a prior issue, the plan of refunding must be set forth in detail.

17. Some bonds or mortgages contain the option to convert into the capital stock of the issuing company or

¹The former practice of the obligor to covenant to pay the principal and interest without deduction of taxes is now being omitted by many corporations. At the present writing there still seems to be a dispute as to whether the promise of the mortgagor to pay the Federal Income Tax is not void.

other securities agreed upon; in such cases, the method of conversion, the time limits of conversion, the price, etc., are given. The same detailed provisions should be required where interchange of coupon or registered bonds is allowed, and provision should be made for the replacing of lost and mutilated securities.

18. Then comes the recital stipulating in the agreement that all control of administration and operation be given into the hands of the trustee.

19. Provisions and regulations governing defalcation, foreclosure, the duties, rights, liabilities and waivers of trustees, officers and stockholders are in the mortgage.¹

20. The mortgage makes provision for the registration of the principal, and some mortgages include the interest and the place, time and method of payment, signature, etc.

21. When the mortgage has been approved by the legal counsel of the corporation and trustee, and such necessary changes made, as agreed upon, the instrument is signed by the president of the company and the trustee, and the respective seal of each affixed and attested by their secretaries.

22. Provisions are usually made in large mortgages for any changes that may be made in the instrument, when all parties to the mortgage approve.

23. Where it is desirable for the mortgagor to obtain releases for certain parts of its properties, especially where government regulation requires it, the reservations protecting all interests must be complete, and at the same time give considerable latitude.²

24. A covenant should be made in the mortgage providing, where required, for the keeping of the transfer books at the office of the registrar, as also for the transfer agency.

25. A number of original copies are usually issued and considered as one instrument, in order to facilitate the recording of the mortgage when the corporation, as in the case of a railroad, has properties extending into several states. In all states it must at least be filed with the Secretary of State, and in some states with the Recorder of each county through which the property is domiciled.

¹These are discussed in detail under a subsequent heading.

²Example of Northern Pacific Mortgage of 1914.

26. All terms which need an explanation should be clearly defined.

27. Lastly, after the acceptance by the trustee, and attestation acknowledgments by proper company officials as stipulated in (21), the mortgage is registered and recorded with either, or both, state or county officials empowered with this duty.

*Other Creditors' Claims.*¹—As long as interest charges and principal are met when due, and the corporation gives strong evidence of a wide enough margin of profits above all expenses for the future, the bondholder has little concern in priorities. But all careful business planning requires that the risks be known and covered where possible. The difference made by these risks in the value of securities is what determines the difference between investment and speculation, and the investor assumes or eliminates these risks according to the safety of the security which he purchases. A knowledge of these risks requires an understanding of legal priorities, as well as an appreciation of the financial status of the corporation. In the purchase of the security the investor does not anticipate bankruptcy and foreclosure, but he should know what the legal risk in priority is, should contingencies ever arise. Investors, through ignorance of their priority claims, have often made needless sacrifice by throwing their holdings into the market where they would have held them had they known of the advantage which their securities possessed.

Upon the foreclosure of a mortgage, the court provides for the sale of the property covered by the mortgage and determines to whom the proceeds shall be distributed after all the expenses of foreclosure have been paid. Following these expenses in precedence, are those claims specifically stipulated as having priority by state statutes and those specially designated by the court. The latter may be those debts which have been assumed under the court's own orders. Stat-

¹The student of investments will find that a careful study of the classification and description of bonds will give some assistance in determining priorities. As so strongly emphasized under classification, the name of a bond must not be taken as the basis of its lien, but a careful study will soon determine what can be accepted.

utes almost always declare that taxes and all forms of government assessments shall have priority over all creditors' claims regardless of when the tax was levied.

The statutes of most states provide for the priority of all operating expenses and receiver's certificates, which may be taken at the court's determination from the earnings of the property during receivership or from the sale of the property itself. It is also a well established principle in a few states, that the operating expenses incurred six months before receivership may be given the same preference. When preference is given by statute to mechanics' wages—*i. e.*, the wages of those performing physical labor (and also in some states of those performing service)—and materials for construction to keep the properties intact, these rights precede those of the mortgages. Unless, however, the time within which these latter claims can be filed and submitted to the proper officials is complied with, these creditors are classed with the unsecured creditors. If the income that should have been used for operating expenses is placed into the fixed property, then operating expense, if not fully satisfied out of income, will have first claim on the proceeds from the sale of the property to the extent of the amount put in the property. All unsecured creditors are paid after the claims of the secured creditors have been satisfied, with the general exception of priorities granted. Judgments, claims for property condemned for public utility purposes, or claims against the corporations are classed with unsecured claims, unless the judgment or decree has been entered before the mortgage was authorized and issued. When the creditors have equal rights, an equal distribution of the property is usually ordered by the courts to satisfy these claims.

Receivers' certificates, which are issued to enable the property to continue operation and to maintain both the property and the business, preserve the value of the securities on the properties. Under the conditions under which these funds are advanced, all statutes recognize the equity in the priority of receivers' certificates over other forms of secured obligations.

After all the aforesaid claims, together with the trustees and receivership expenses, have been adjusted, secured creditors or

bondholders are entitled to be paid. There is a well established principle governing the priority of mortgages which the mortgage that has been recorded first secures, *i. e.*, a prior claim to payment from the sale of the property on which it is levied. On other property of the corporation on which the mortgage has no specified claim, it is on an equal basis with other general creditors. If prior mortgage liens exist, these must be paid in full before the foreclosing mortgage may receive anything, but only to the extent that the proceeds from the sale of the property will satisfy such a claim. Prior mortgage bondholders, however, may partially waive their claims in favor of subsequent mortgage holders. This is done, especially by security holders in large corporations, to facilitate reorganization where it is seen that money can be raised through a new issue that will provide the necessary funds to relieve the embarrassment of the company, otherwise, the parties waiving their rights might suffer large losses by forcing a sale of the property.

All bonds of the same issue will have equal claims against the property upon which the mortgage is issued, unless the bonds have been classified in the mortgage and given priority according to their series or numbers. A subsequent mortgage issued first, must be a subsequent claim, even if the mortgage on the first authorization is issued after the subsequent issue, as long as the first mortgage was previously recorded. The purchase-money-mortgage is an exception to this general statement, as a mortgage lien upon property purchased from the sale of this bond has priority over all issues, as applied to this property purchased.¹

Where a clause exists in the regulation of preferred stock, stating that this stock shall have prior claim to any future bond issues upon the property, this agreement has precedence over subsequent bond issues. In all other cases bonds have prior claim.

All debenture bondholders are in the position of unsecured

¹See chapter xvii, Equipment Securities. The issue of equipment bonds on a conditional sale is also a first claim, though we have a difference here in that the property does not pass into possession of the railroad until the last bond has been retired.

creditors and cannot receive any proceeds from the sale of the property until all secured liens have been paid in full. But debentures bondholders do have precedence over all stockholders' claims. Most debenture issues now, however, provide that the debenture issue shall have prior claim over any future bonds or notes issued. A debenture issue would, then, automatically really become a specific claim upon the property though no changes are made in the issue outstanding.

The priority of all secured liens must be individually determined. The turn in which they are officially recorded with the proper public official, is the most common determinant of priority in relation to other executed mortgages. When the mortgage has been recorded and the lien thus established, it cannot be changed. What these liens are, then, must be ascertained from the mortgage instruments—the name of the instrument, as we have already found, is never a safe guide. A reliable banker who has underwritten an issue of bonds is always willing to give this information when it is requested.

Powers, Rights, and Liabilities of the Trustee.—As already noted, it is essential that a common mortgage be issued to secure a bond issue. Without this, the corporation would not be able to split its bond issue into fractional parts to facilitate the selling of the obligation. Unless this could be done, it would be exceedingly difficult to find a purchaser, or even a small group of combined purchasers who would be willing, even if they could, to place all of their investments in the security. If fractional mortgages were issued to secure each small denomination of bonds, there would be an added difficulty of transferring and recording the mortgage each time that a bond was sold, if safety to the holder were insured. To obviate these difficulties, the one mortgage issued and recorded and securing all of the fractional denominations of the issue is assigned to a trustee, who is thereby made the representative of the bondholder. It is his duty to see that the property is properly conserved and that funds are not diverted which properly belong to the payment of principal and interest, and to bring legal action when necessary to protect the interests of the bondholders. Where all payments are being properly met, there is

rarely any necessity for action. It is usually only in foreclosure that the trustee needs to take action.

Trust companies are now practically always appointed as trustees, as they have greater facilities than an individual for supervising the interest of the bondholders. A trust company for all practical purposes is perpetual, a fact which dispenses with the necessity of reappointments because of death, etc. And lastly, the trust company carries with it great confidence.

With the large delegation of power, there must follow a large degree of responsibility on the part of the trustee to bondholders. The accountability of the trustees, however, applies only to any lack of faithfulness in the exercise of his power. As long as the trustee has used diligence and reasonable care in exercising the duties of his trust, the law relieves him from any personal responsibility, and this is accepted by the bondholders when they purchase their bonds. If the bondholders, however, have assented in any way to the wrongful acts of the trustee, they have no grounds for action, as they are parties of the act. On the other hand, the trustee is liable to a third party for any damages in operating the property. But the mortgage deed makes provisions for reimbursement to the trustee for such damages, where they are not the result of personal neglect. The trustee is required to take personal charge where executive control and administration are required. This is the purpose of having a trustee, and to delegate to others such powers would defeat the purposes of a trusteeship. It does not, however, limit his power to delegate the functions of routine in an executive office.

Though the trustee is appointed by the corporation, he is a representative of the bondholder. With the duties of the trustee closely defined by both the mortgage and state statutes, he now has little power outside the scope of these defined rights. Further, all acts of the trustee are subject to review by the courts.

The chief powers, rights, and obligations of the trustee may be summarized as follows:

1. To certify the bonds issued upon the mortgage under his trusteeship;

2. To see that interest charges and principal are paid when due;

3. To keep a check upon the physical condition of the property;

4. To see that the funds belonging to the mortgage holders are not dissipated;

5. To seize the property of the corporation under authority of the court when either principal or interest is not paid, provided this power exists, whether by statute, or provision in the mortgage where such is allowable by law;

6. To bring foreclosure proceedings and to request the court to appoint a receiver, if either interest or principal is not paid;

7. To sell the property in case of foreclosure, without operating it, if the mortgage expressly so provides.

Special conditions affecting the trustee are:

1. Where a trustee is doubtful as to the method of procedure, he should appeal to the court for guidance;

2. He may seek legal counsel and not be liable for accepting this advice where he is following it in good faith;

3. If the mortgage deed states that any actions of the trustee shall be governed by a specified vote of the bondholders, both the trustee and all bondholders are governed by such vote;

4. The trustee may be removed for any wilful acts of either omission or commission that injure the rights of the bondholder;

5. A trustee cannot resign without the consent of both the bondholders and the corporation, except where his resignation is expressly provided for in the mortgage;

6. The compensation of the trustee may be fixed by common agreement or by the mortgage; all reasonable expenses in carrying out duties of the trusteeship are always allowed by law.

The bondholder is bound by any acts that the trustee exercises, under the recitals of the mortgage. If the trustee's neglect of duty has decreased the value of the property, the bondholders can apply to the court for an order for the removal of the trustee. Practically all mortgages of large corporations

provide that the written statement filed by a given number of bondholders will remove the trustee from office. Where such provision is not made in the mortgage, the trustee can be removed only by authority of the court. If the trustee is removed by the court, one or more of the bondholders selected as a committee by the majority of the bondholders will assume charge of the litigation affecting the mortgage. The court also has the right to command the trustee to perform such duties as it deems are the functions of the trustee under the mortgage.

Rights, Powers, and Limitations in Foreclosure.—When the corporation defaults on its mortgage, the right of control passes to the trustee. The default may consist of the failure to pay any part or all of the principal, or the interest, when due, or the failure to meet certain other requirements specified in the mortgage. If a default takes place, the mortgage instrument usually stipulates that at least a majority vote of the bondholders is necessary before the trustee can declare default.

Most mortgages require the consent of a specified number of the bondholders before the trustee can institute proceedings. As provided by the mortgage, if the corporation defaults, the trustee may either sell the property without taking over the management or he may take the corporation over and operate it and sell it when he deems it prudent to do so. But, even though these conditions are given in the instrument, they do not prevent the right of the bondholders to ask for foreclosure in the courts. This is a right given by law which supersedes any right conveyed by the mortgage. The latter action, however, cannot be taken until a given time after the default or after the bondholders have given their consent.

Practically all mortgages, to safeguard against hasty action or the taking of undue advantage by either parties to the mortgage, defer any action until after a given period has elapsed after the default upon the mortgage. In either case, the action must be approved by a specified percentage of the bondholders, or the trustee given the power in the instrument. When the trustee does assume control, he maintains it until all claims have been adjusted. The state statutes, on the other hand, fix the

time limit within which action for any claims against the mortgage may be taken by its statute of limitations.

The right of seizure of the properties for any default of interest may be waived according to the conditions stated in the mortgage. The instrument should provide that any such action should include the right of claims for the principal, as well as the interest. But this does not affect any subsequent default or does it affect any of the existing rights of the bondholders. This waiver may be given even after the proceedings against the corporation have started. The corporation is then given back complete control of its properties. The mortgage further usually provides that the corporation may retain possession of its properties by authority of the court, either before the conclusion of foreclosure proceedings, or before the consummation of the sale of the properties, if all charges and expenses have been met. But this in no way affects the future rights or acts of either party. Where under the law the trustee's right to sell may be included, this right must be given in the mortgage. If given the power to sell at his own discretion, the trustee may do so without taking over the control of the property. When the trustee assumes possession of the properties of the corporation, the mortgage may either have provisions allowing him to lease the property, or take immediate control of operations. The regulations contained in the mortgage affecting either the lease or the operation of the property are widely different. In some states statutes fix the important limitations. As the trustee does not represent the court when he assumes direct operation, he becomes personally liable except where exempted by statute. This necessitates a provision in the mortgage or vote of the bondholders, which will reimburse the trustee for any liability charges that may arise against the trustee. All expenses incurred in the operation of the property are met by the usual methods out of the earnings of the property.

The trustee seldom will sell or operate the property, but will practically always apply for foreclosure proceedings in the court.¹ Where the property is affected by the statutes of sev-

¹The operating of the properties, which formerly was frequently done, is now made impracticable by the restrictions placed on foreign

eral states, as with railroads, the complexity of the various statutes regarding the different priorities makes the appeal of the trustee to the court for a foreclosure and receivership the simplest and safest procedure. If the foreclosure is granted, the court appoints a receiver who assumes control of the property. In foreclosure the rights of all creditors are considered by the court, and the latter appoints a receiver who takes charge of the property for the court and may operate the property if directed by the court. The limitations of the trustee's power to foreclose, as previously stated, usually require that a specified number of bondholders must give their consent. When no regulations are given in the mortgage and no action has been taken, after the "grace days" of a default have elapsed, a minority has the power to request the trustee to institute foreclosure proceedings. If the trustee follows such a recommendation, the majority can deter the action of the trustee only by satisfying the claims of the minority.

When the trustee is negligent, or refuses to act when officially notified by the bondholders, the court can authorize the bondholders to institute their own proceedings of foreclosure.¹

After the court has formulated its decree, as to the priorities and the amount due to each class of creditors, the corporation is given the opportunity of making a payment of these claims. The time allowed and the conditions governing the court's decree vary according to the corporation's state domicile and the states in which the properties are located. If the corporation is not able to make the required payments according to the court's decree, the property is offered for public sale. The court, among the conditions fixed, states a minimum price at which the property may be sold. With large corporations, in order to protect all interests, the bondholders formulate an agreement and appoint a committee with which they deposit their bonds for the purpose of purchasing the property and then organize a company which purchases the old company. In a

corporations, and the liabilities the trust may assume in taking over management in a foreign state. The exercise of this right should always be made optional.

¹See Priorities and Rights; The Receiver in Operation under Other Creditors' Claims.

few states the organization of a new company is not essential, as a corporation is automatically created by the purchase of the corporation and its properties at foreclosure sale.

If any part of the property can be sold without causing harm to the remaining property of the corporation, this part can be sold. Usually the property must be sold as an entirety. The decree of sale of the mortgage will also include in most cases the sale of the franchise or charter. Where the mortgage, as is often the situation with railroads, is on a particular division, the foreclosing mortgage has no rights in the other divisions of the railroad. If the division can be sold without injury to the remaining property, it may be sold as a separate unit by the court's decree. Usually this is not done, for it would make the security of the division a very much less desirable holding.

When the property is in such condition that it will deteriorate during foreclosure proceedings and funds are not available to rehabilitate it and keep it in operation, the courts have in some cases ordered that the property be sold at once. As this does not allow for a representation of all parties and a settlement of disputes, the courts are very reluctant to take such action and rarely have done so.

Where the interest alone has been defaulted and the property is largely in excess of the indebtedness as determined under the foreclosure proceedings, but this amount cannot be immediately secured from the operation of the property, it may be leased to avoid the losses and expenses of foreclosure. If the court follows this procedure, it orders the trustee to lease the property at a fixed rental for a period sufficient to meet all claims, with the agreement that the property will be kept in good condition. It is only when the property has a very large excess value that this procedure is followed.

Settlements, as mentioned under "Other Creditors' Claims," in large corporations at least result in a compromise. Settlements are usually effected by an agreement reached between the various committees representing the different bond issues and the receiver of the property. In large corporations, a sale would also be difficult to consummate without a compromise that would include an exchange of old securities for securities in the reorganized corporation.

If an investor is purchasing new securities of a reorganized corporation that has gone through receivership, he should make certain that the court's orders for the distribution of the proceeds of the receiver's sale have been sanctioned and the final decree signed by the court. While no securities of the reorganized corporation can be officially sold until this decree has been signed, it is well to take this precaution.

If the directors of the old company are bidders for the purchase of the property, they must secure the court's permission. As long as any party can show evidence of ability to make payment, they can become bidders for the purchase of the properties. The bondholders themselves not infrequently combine and purchase the property in order to conserve their interests. It is here that a bondholder must especially watch that he does not act without full knowledge of what the committee proposes and has legal power to do. Committees are sometimes either hastily formed by incompetent men, or they, while still acting within their legal jurisdiction, turn their organization to their own interests after the new corporation has assumed charge of the properties.

When the bondholders are purchasers of the foreclosed corporation, they are practically always allowed to bid in their bonds and other claims if sufficient cash has been advanced to pay the costs of foreclosure and such other credit claims as must be paid in cash. Any sale can be set aside by the court if the bondholders can show legal claims against the sale. This must, however, be done within the limit set by the court. If the claim under which the foreclosure is made, is on a real estate mortgage the mortgagor may redeem the property within certain statute limitations, even after the foreclosure sale.¹

Reorganization Agreements and Procedure in Relation to the Mortgage.—When a foreclosure seems imminent or a trustee has actually foreclosed a mortgage, the banking house which underwrote the mortgage or those investors having large financial interests in the corporation appoint a committee. This committee, which is usually of their own number, formulates an agreement for the purchase and exchange of the securities of the old

¹Real Estate Mortgages, chapter xxviii.

company, and the formation of a new corporation. The committee submits its purposed agreement to the bondholders and other interests that will be affected by the foreclosure, and these may determine whether the proposed plan can be made operative. With the plan submitted is sent a request asking the bondholders and those affected to deposit their securities with a trust company and receive in return a certificate of deposit.

The certificates of deposit state that the trustee of the deposited securities has received certain securities and agrees to bind himself to the terms of the agreement. These certificates may be returned to, or be withdrawn by, the owner upon his endorsing the deposit certificates to the trust company. A time limit is usually fixed in which a party may withdraw. Such party is accountable for all expenses to a ratio of the securities held to the total; this ratio is generally fixed at not higher than one per cent of the face value of the securities. These securities can be transferred like any certificate upon the books of the company. With the transference, pass the terms of agreement of the original owner. A time limit is placed upon the securities which can be deposited. This time-limit can be changed only at the will of the committee or the Court. A penalty is usually attached to any tardiness.

It is rare that a bondholder is allowed merely to sign the agreement without depositing his securities. Not infrequently several committees will be appointed and a vigorous fight will be made to secure a sufficient number of security holders to deposit with the respective committees in order to secure control. It is needless to state that in such a fight considerable discretion needs to be exercised in the selection of the committee with which to deposit securities.

As practically all states now have statutes regulating reorganization, many of the details of the agreement that can be made are predefermined. The more important matters included in the agreements are:

1. The appointment of the committee which shall take charge of reorganization proceedings;
2. A statement of the rights and powers of this committee;

3. A specification of the regulations under which the securities are to be deposited and the rights and obligations of the depositors;

4. Arrangements for the formulation of a plan of reorganization and the incorporation of a new company, and a statement of what the respective rights will be in the new corporation;

5. Provisions for all special powers that may be conferred upon the committee in matters which can be handled more expeditiously, such as making changes in the plans, etc.;

6. Provision for the assessments that will be charged against the security holders;

7. Provision for the expenses of reorganization and the salaries of the committee and the replacement of members.

If the reorganization plan is contained in the original agreement, the assent to the plan is given by the security holder in signing the agreement. This procedure is uncommon. The ordinary method is to submit the plan of reorganization for approval at a later date. In some instances the agreement gives complete power to the committee to formulate and carry into execution any plan it may agree upon, in which case it is unnecessary for it to submit the plan to the security holders for approval, though the latter are bound by an equitable and legal plan that the committee may adopt. This, of course, assumes that the stockholders have agreed or contracted to be bound or that the security by virtue of which they claim their right so provides. But under whatever condition the plan is submitted, it is subject to the court's approval.

When the plan has been formulated, it is filed with the depositary, and opportunity is given all security holders to examine it. Statutes require that it be published in certain periodicals, and in most cases a copy is submitted to the registered holders of deposit certificates. If the plan is then accepted by the security holders, the committee can proceed to make its bids for purchase under order of the court. If the number necessary to approve is not stated in the mortgage or agreement, the will of any majority does not bind the minority, though it is rare that this point is not covered in either one of these instruments. When changes are made, after the approval

of the reorganization, they must again be submitted to the security holders. Minor details are usually left to the committee to pass upon. If the points are not covered in the agreement, recourse may be had to the court.

The powers of the committee in carrying out the plan of a reorganization are quite broad. They are often given the power to alter a plan even after it has been declared in operation. Stockholders and other creditors are sometimes allowed by the terms of the agreement to join in the reorganization proceedings when it may be to the best interests of all parties. The terms and the conditions are usually fixed by the committee.

A security holder cannot be forced to participate in the new corporation except that he may have already pledged himself to become a member of such proceedings by the terms of the mortgage. He has, however, a right to share in the sales of the property which secured the bonds. The same is true if the security holder has withdrawn from the agreement or the reorganization is given up. The status of the security holder in the latter case is the same as if no proceedings had taken place. If the mortgage states that a majority shall decide, then the minority is compelled to accept their decision. The court has gone to the extent, where such a rule has not existed, of overruling the minority if the corporation was one upon which the public was greatly dependent, as in the case of a public utility.

In most reorganizations it has been found necessary for the bondholders to bring other creditors and even stockholders into the reorganized plan. This arrangement avoids the objections that may be raised by other creditors and owners of the corporation. It also hastens the settlement, which usually must in the end be carried out by agreement. The stockholders under any condition are forced to bear the brunt of the situation and must meet the heaviest assessment or scaling down of their holdings in the new company or both. The stockholders have no claims upon the assets until the claims of all creditors have been satisfied, and it is only by consent of the bondholders that they can participate. Very frequently the large stockholders are large holders of bonds, and to retain their control in policies, they make large concessions in their bond holdings.

CHAPTER VIII

REGISTRATION, TRANSFER AND ASSIGNMENTS OF SECURITIES, AND THEIR VALIDITY AND LEGALITY

SECTION I.

An understanding of the more important requirements concerning registration, transfer, and assignment of stocks and bonds will often save delays as well as losses to the security holder. An understanding of the principles of transfer which are often considered arbitrary will also reveal that the procedure has been built up with the particular purpose of safeguarding the security holder.¹ While this book deals with bonds, the simpler approach to this subject is suggested in the transfer of stocks. Generally, however, the conditions governing the transfer of stocks are common to the transfer of registered bonds. And the general rules as to the signatures and similar matters are applicable to both stocks and bonds.

Transfer of Stock.—The stock certificate² is an evidence of

¹An excellent summary of the legal aspects of transfer and assignments for the layman has been issued by the Investment Banker's Association (1920) under the authorship of H. Brua Campbell, on *Legal Aspects of the Transfer of Securities*. The topic under Transfer of Stock has largely followed the order of this little book. For the same purposes F. L. Maraspin and H. B. Driver's *Fundamental Principles of Stock Transfers* (1917) will be found useful; for the more technical treatment the works of the Corporation Trust Company, Fletcher's, *Private Corporation*, and Cook's *Corporations* are standard.

²Shares \$. each
Number

Shares \$. each
Shares

THE X. Y. Z. COMPANY
Authorized Capital \$.
INCORPORATED UNDER THE LAWS OF THE COMMONWEALTH
OF MASSACHUSETTS

This certifies that is the owner of
. shares of the capital stock of the X. Y. Z. Company,
transferable only on the books of the Company in person or by attorney
upon the surrender of this certificate duly endorsed.

personal ownership in the share or shares of stocks of a corporation. With this right in ownership is also included the right to pass this ownership to another person. But for the latter person to have a legal recognition of ownership, the following requirements exist: (1) the stock certificate must be assigned by the transferrer to the transferee; (2) the transfer is made by the corporation in its book, and a record of the new holder made; and (3) a new certificate is issued to the new owner.

The assignment, which, as some one has expressed it, is the key to the whole problem, may be effected in two different ways as described in the Uniform Stock Transfer Act:¹ "Title to a certificate and to the shares represented thereby shall be transferred only, (a) by the delivery of the certificate endorsed either in blank or to a specified person by the person appearing by the certificate to be the owner of the shares represented

(Continued from footnote on page 131.)

This certificate is not valid until countersigned by the Transfer Agent Registered by the Registrar.

In witness whereof the X. Y. Z. Company has caused this certificate to be signed by its duly authorized officers and its corporate seal to be affixed, this day of

..... (Seal)

Treasurer	President
Countersigned	A. B. C. Company,
	Transfer Agent.
By	
Registered	D. E. F. Company,
	Registrar.

By
Agent to Register Transfers.

It will be noticed that there is embodied in this certificate: (1) the state of incorporation; (2) the capitalization of the company; (3) the par value of the shares; (4) the class of stock; (5) the certificate number; (6) the number of shares owned; (7) the name of stockholder; (8) the signature of the officers of the company; (9) the corporate seal; (10) the signature of the transfer agent; (11) the signature of the registrar. (F. L. Maraspin and H. B. Driver, *Fundamentals of Stock Transfers*, pp. 7, 8.)

¹The Uniform Stock Transfer Act quoted above has been adopted in (1920) thirteen states and one territory; namely, Connecticut, Illinois, Louisiana, Maryland, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Tennessee, Wisconsin, and Alaska.

While the law is not so well standardized in other states, a corporation is liable if they refuse to transfer stock that possesses the legal right to be transferred. A corporation wrongfully refusing to transfer can be sued for damages. A corporation is also required to exercise reasonable diligence in the recording of stockholders in its transfers.

thereby, or (b) by delivery of the certificate and a separate document containing a written assignment¹ of the certificate or a power of attorney to sell, assign or transfer the same, or the shares represented thereby, signed by the person appearing by the certificate to be owner of the shares represented thereby. Such assignment or power of attorney may be either in blank or to a specified person . . . ”

The latter of these two forms of transfers is generally used, as it enables the recording of the transfer on the corporation's books without the transferrer being present. The transferrer may endorse the instrument of assignment with the name of the transferee inserted or left blank.² All names should be complete, and no initials, prefixes, or titles should be used. Any qualification of ownership should be fully noted. The number of shares should be inserted after the name of the transferee. The form for the power of attorney is usually left blank as the transferrer cannot as a rule appear at the corporation's office to make the transfer. The company's transfer agent can then insert his own name and make the transfer. To facilitate the ready delivery from hand to hand, both the blanks for the name of the transferee and attorney are left blank. Any owner may then fill in the blanks of the assignment and insert his own name. The death of the transferrer will not impair the right of the holder to make these insertions. If the name of the attorney is filled in before the certificate is presented to the office for

¹KNOW ALL MEN BY THESE PRESENTS

For value received hereby sell, assign, and transfer unto shares of the Capital Stock represented by the within Certificate, and do hereby irrevocably constitute and appoint Attorney to transfer the said stock on the books of the within-named Company with full power of substitution in the premises.

Dated this day of
Witness: (Seal)

.....
F. L. Maraspin and H. B. Driver, *Fundamentals of Stock Transfers* (1917), p. 10.

²H. Brua Campbell, *Legal Aspects of the Transfer of Securities*, p. 12. (N. Y., Doubleday, Page & Co., for Investment Bankers' Assoc. of Amer., 1920.) (This is the best brief summary of the law for the layman's use that has yet come to the author's attention, and for this reason this book has been frequently referred to rather than to a treatise intended for the lawyer.)

transfer, it should be accompanied by a certificate of substitution signed by the attorney. This power signed in blank then is completed at the corporation's office in the same way as a blank power of assignment. No date need necessarily appear on the assignment. Care, however, should be taken that if a name is entered on the assignment blank that this name should be an exact duplication of the name on the face of the certificate.

No absolute or general rule can be laid down as to the requirements of signature. Every office will use such means, as it can, to satisfy itself as to the genuineness of the signature. In some cases a witness of a known person to the transfer office will be accepted as sufficient evidence of identity to the person signing. In New York the common practice of transfer offices is to accept the signatures of a firm of the New York Stock Exchange as sufficient guarantee of the signature of the transferor. Where the latter is not used or accepted, a notarial acknowledgement of the signature must be made.

Summarized, these requirements of the simplest form of a transfer from Mr. Arthur Jones to Mr. John Smith are: (1) the proper endorsement of the assignment of Mr. Jones; (2) either an acknowledgment before a notary public of the signature of Mr. Jones or guarantee of a member of a firm of the New York Stock Exchange; (3) in some cases a witness to a signature of Mr. Jones; (4) the full name and address of Mr. Smith; (5) the payment of the Federal and State Transfer tax which is shown by an attached transfer stamp.

*Classification of Transfer.*¹—The commonly accepted classification of transfers is: (1) by an individual; (2) by the tenants; (3) by partnerships; (4) by corporations; (5) by fiduciaries. The transfer of the individual is usually simple. The general requirements for the individual transfer are those stipulated under the preceding topic.

Concerning the transfer between husband and wife the state laws are somewhat at variance and the statute of each particular state should be consulted.

¹F. L. Maraspin and H. B. Driver, *Fundamental Principles of Stock Transfers* (1917), pp. 26-53.

“As respects such transfers it would seem that the law of the domicile of the married woman would govern the respective rights of the parties to the transfer, but that the duty of the corporation in connection with the transfer would be determined by the law of the state in which the corporation was organized.¹

“It has been held that although by law of a state a sale of stock by a married woman to her husband without an order of court is void, nevertheless, a corporation which transfers stock on its books pursuant to such sale cannot be held accountable to her thereof unless, at the time it made the transfer or before the stock got into the hands of an innocent purchaser, it had notice of the material relation existing between the parties.”²

Where one does not have the legal right to make transfers, such as an infant or one otherwise legally disqualified, a representative must be legally appointed to act in such a capacity. When one person acts in place of another or acts for another by virtue of an appointment, the person acting for this person is called an Attorney in Fact. The transfer agent must have evidence of the authenticity of the attorney's signature and assure himself of the genuineness of the power of attorney. In case of bankruptcy or an assignment to creditors, all power of transfer of securities is thereby surrendered and must be made by the properly appointed legal representative.

Where two or more persons (other than husband and wife) hold in common under one instrument, a joint tenancy is said to exist. Where two or more persons hold property in common but under separate instruments, indicating the interest as separate, the arrangement is known as tenancy in common. Statutes usually provide for the creation of tenancies in common, and in that case a transfer of stock is made in the name of each individual as joint tenant.

In a partnership, as every partner is an agent, a transfer can be made by any partner. It is, however, deemed advisable

¹H. Brua Campbell, *Legal Aspects of Transfer of Securities*, p. 21. (Reference to Cook on Corporations, 7th Ed., pp. 62-954.)

²Ibid. (Reference to Fletcher on *Private Corporations*, p. 6436.)

where the partnership owns the stock and a partner is to become the possessor of the stock, that some other member of the firm make the assignment for the firm.

The transfer of stock owned by a corporation must be made by an official designated in the by-laws of the corporation with the power to assign and transfer securities. A copy of the by-laws supporting the authority of the corporation officer's power and a certificate from the secretary indicating that the person signing is the person having that power, are required. If the power of transfer is not specified, the board of directors of the corporation may convey this right to an official of the corporation. In the second case a copy of the minutes conveying the special power to a particular officer is required. The requirements are practically the same where any form of association, fraternal or other form of voluntary organization desires to transfer stock. Transfers under Fiduciaries, *i. e.*, Executors,¹ Guardians,² Administrators,³ Conservators,⁴ and Trustees⁵ are much more complicated and technical than the power of transfer as related to any of the forms of transfer previously discussed. So many exacting legal differences must be observed that no attempt can be made here to discuss the details. What may apply in one state will often have to be modified in another state. So many changes are also taking place every year in state statutes that the advice of a trust company should always be sought before taking action. Be-

¹Executor—"One to whom another permits, by his last will, the execution of that will and testament."

²Guardian—A person appointed by the court or will to manage the affairs of a minor.

³Administrator—An Administrator is usually an individual appointed by the surrogate or probate court to manage and distribute the estate of a testator who has appointed no executor in his will or the estate of a person dying intestate.

⁴Conservator—in the sense in which this term is used above, an individual appointed to take charge of the affairs of an individual advanced in age or of one whose mental weakness incapacitates him from taking care of his estate.

⁵Trustee—"A person in whom some estate, interest, or power in or affecting property of any description is vested for the benefit of another, or to whom the property has been conveyed to be held or managed for another." (3 *Bonv. Law Dict.* p. 3334.) (Quoted.)

cause of these conditions, only a general statement is made for the purpose of giving the general reader some idea of the problems involved.

In any form of control and administration of property, the full legal evidence of the powers and authority of the official is required by the transfer office of the corporation. In fact the general principle can be laid down that no action can be taken in the administration of others' affairs without legal evidence of authority. When stocks in the name of a descendant are to be transferred, a certified copy of the will and a certificate showing its probate and testamentary letters as to the appointment must be offered. The will often contains specific direction as to the disposition of any securities, which must be complied with. In some states an executor cannot sell property of any form without a specific order from the court. A certified copy of this order from the court must then also be presented at the transfer office. Particular difficulties in this connection are apt to arise as to whether all conditions of the order have been met. If they have not and a corporation has transferred stock and violated some requirement of the order regulated by statute, it may create a liability against itself.

Again, the power of an executor to buy and sell securities should be explicitly stated. If the power is a general one to manage, this power is usually implied. In some states this power is not given under statute except by a specific order of the Court. To avoid danger of legal complications all carefully drawn instruments provide for powers to sell and purchase securities. The same conditions also apply to the trustee. As authorities previously referred to state: "It is the general duty of the trustee to keep the property which is left him in trust or conveyed to him under a trust instrument, in its existing form, that is to collect the income accruing on the property held in trust and distribute the same in accordance with the terms of the trust. But it often becomes imperative and necessary that certain securities be sold and investments changed, and the transfer agent would be bound to see that authority for such

action was given the trustee by the terms of the trust instrument.”¹

Also a fiduciary has not the legal right to make a contract with himself, unless specially authorized by the court; the same applies to executors of an estate. To further safeguard the trusteeship against transfers of this character, the trustee cannot give general powers of attorney to another individual. Although it is not necessary for the purchaser from a trustee to determine whether the trustee is making an unauthorized sale, or for the corporation to ascertain whether a misappropriation of funds has been made, yet if notice has been given of misappropriation of moneys, the purchaser or the corporation would be liable for such a transfer.

In a number of states the transfers of securities to a descendant must also be accompanied by the authority of a state official or officials; in most instances this requirement is made for the purpose of insuring the state its fees or taxes. In such cases a certified copy of this authority should also be required.²

Illustrations of a Transfer Under Fiduciaries' Powers.—The general requirements governing the transfer of a descendant are so well summarized in the following illustration by E. Brua Campbell, that is quoted in full:

“As illustrating the general requirements of transfer offices when stock belonging to the estate of a decedent is presented for transfer out of the name of said decedent, let us assume that John Smith, a resident of Philadelphia, is the registered owner of a certificate for 100 shares of the common stock of X Railway Company, a corporation organized and existing under the laws of the State of Missouri. The said John Smith dies leaving a last will and testament which is admitted to probate in the

¹F. L. Maraspin and H. B. Driver, *Fundamental Principles of Stock Transfers* (1917), p. 46.

²“In no case will a transfer from an executor to himself individually be recognized, unless it appears from the Will that he is a residuary legatee, and unless it is further made to appear by affidavit of an executor, that all legacies and all claims against the descendant and his estate have been paid in full, and that there are assets sufficient to pay the remaining expenses of administration. In no case will a transfer by an administrator to himself be recognized unless specifically authorized by the court controlling its administration.” (Spencer Trask and Company, *Unpublished Memorandum*.)

Orphans Court of Philadelphia County and letters testamentary thereunder are issued to one George Brown. The executor in order to pay certain debts of the decedent desires to sell this stock and it is therefore forwarded to a brokerage firm in New York City, where the Railway Company has a transfer office for the convenience of its security holders, with the request that it sell the same for and on account of the estate. The firm of brokers effects a sale of the stock and the next step is the transfer of the certificate into the name of the purchaser or his nominee on the books of the Railway Company. The usual documents and proofs which the Railway Company would require before making this transfer are the following:

(1) An officially certified copy of the last will and testament and of all codicils thereto, of the decedent.

(2) An officially certified copy of the decree or a probate certificate of recent date evidencing the appointment and qualification of executor or executors, and that such appointment remains unrevoked. In New York these probate certificates are sometimes called surrogate's certificates.

(3) Stock certificate properly assigned by George Brown "as Executor of the Estate of John Smith, deceased," with signature guaranteed by a firm having membership on the New York Stock Exchange, or a notarial acknowledgement of the signature in lieu of said guarantee.

(4) Waiver of the Comptroller of the State of New York consenting to the transfer under the Inheritance Tax laws of said state.

(5) Waiver of the proper authority of the state of Missouri consenting to the transfer under the Inheritance Tax laws of said state.

(6) New York State and Federal Transfer Tax stamps in the proper amounts.

It is believed that no waiver under the Inheritance Tax Laws of Pennsylvania would be required in this case."¹

Variations, of course, in the detail of some of the instruments of authority of power offered to the transfer office by the various fiduciary agents must be taken into account in the above quotation. The general principle of application in the transfers of persons acting under fiduciary powers is well illustrated.

¹H. Brua Campbell, *Legal Aspects of the Transfer of Securities* (1920), pp. 30-31.

Lost, Destroyed, or Stolen Stock Certificates.—Under the Uniform Stock Transfer Act, the law provides that: "Where a certificate has been lost or destroyed, a court of competent jurisdiction may order the issue of a new certificate." This is the law in some other states not having the Uniform Transfer Act. The evidence, however, must be sufficient to prove such loss. The courts have, also, generally held in most cases that a bond of indemnity against its loss to any bona fide holders of the lost stock certificates must be furnished.¹ In addition to the indemnity bond, the holder is usually required to give affidavit of the loss, and a reasonable amount of publicity.

The case with stolen certificates is quite different. Stocks are like non-negotiable bonds. But if the owner allows the certificate to pass from his hands to a bona fide holder endorsed in blank, the question of negotiability is not so clearly defined and the merits of the case must be established upon its particular facts.

The Uniform Transfer Act provides that if the certificate has been delivered without the consent of the owner, he may claim the certificate. This nullifies the transfer except in case, "the certificate has been transferred to a purchaser for value in good faith without notice of any facts making the transfer wrongful, or (2) the injured person has elected to waive the injury, or has been guilty of laches in endeavoring to enforce his rights."² A considerable clarification has been brought about by the Uniform Transfer Act in establishing "the elements of negotiability upon a stock certificate which, endorsed in blank for transfer passes into bona fide hands and such would seem to be the construction placed upon it by the highest courts of at least one state."³

Transfer Taxes.—Transfer taxes discussed in the chapter on "Taxation of Securities" are becoming of increasing importance. The number of states using the tax on stock transfers is

¹Fletcher, *Private Corporations*, p. 5796.

²Uniform Transfer Act, sec. 168 (I).

³*Miller v. Doran*, 151 Ill. App. 527, affd. 245 Ill. 200. (Quoted from H. Brua Campbell, p. 68.)

still very limited, but will be increased. With this transfer tax should also be added the Federal stock transfer tax. These, of course, do not apply to bond transfers. But of even more importance to the investor are the Federal and state inheritance and estate taxes also discussed in the subsequent chapter referred to above. So large and important have these taxes become that the question as to what form an estate shall be put in is assuming large proportions.

Negotiable Instruments.—The distinguishing characteristics between bonds and stocks have already been described in Chapter II. For purposes of transfer, bonds may be divided into the two classes of negotiable and non-negotiable instruments. Negotiability, as referred to here, means the power or right possessed by an instrument to be transferred from person to person the same as any medium of exchange. Coupon bonds made payable to bearer fill these requirements of negotiability and can be transferred by mere delivery. This assumes that the holder of the bond has no notice of any defenses which the former holder of the title could use in laying claim to ownership of the instrument. Again, however, any variation from the requirements stated in the paragraph following may alter the negotiability of the instrument. This must be decided by the facts in each particular case.

The conditions and rules governing registered bonds (the non-negotiable instruments) are usually set forth in the corporation mortgage securing the bond issue. The details in the mortgage are frequently very complete and should be examined with extreme care if a mooted question on the transfer ever arises.

The Uniform Negotiable Instruments Law which is now used in practically all states is applicable to corporate bonds. As provided by this statute the more important requirements essential to the establishment of the negotiability of a corporate bond are as follows: “(1) It must be in writing and signed by the maker or the drawer; (2) It must contain an unconditional promise or order to pay a certain sum in money; (3) It must be payable on demand or at a fixed or determinable future time;

(4) It must be payable to order or bearer; and (5) where the instrument is addressed to a drawee, he must be named or otherwise indicated therein with reasonable certainty.”¹

*Registered Bonds.*²—A registered bond is one which is payable to a designated individual and is registered in the name of this individual at the office of the company or of the fiscal agent of the company. This bond has no coupons, the interest being paid by checks which are sent to the registered owner. A registered bond, consequently cannot be transferred until the payee has assigned it or an assignment is executed by one having the power of attorney. A new bond will then be made out for the new owner by the corporation or civil division. By conforming to this formality of transfer, the principal and interest becomes due to the last name which appears on the registry, as owner of the bond. The form of assignment used as in transferring of stock is practically always printed upon the back of the bond.

The purpose of registration is to insure the safety of the bond against theft or loss, for a registered bond can be collected only by the registered payee. The inconvenience and delay in the sale of registered bonds have led to a very limited use of this privilege. The fact, however, that so many bonds contain the privilege of inter-changeability from a coupon to a registered bond is evidence in itself that there are a very considerable number of registered bonds sold or coupon bonds are later exchanged for registered bonds.

Coupon Bonds.—A coupon bond is made of two parts: the instrument representing the principal sum payable to a named person or order or to bearer, and the series of interest certificates which represent the respective interest payments due at stated intervals. These interest coupons, which are attached to the part of the bond representing the principal sum, are entirely independent of the latter, and each one of the series is detached, as it comes due, and is presented for payment. These coupons, the details of which will be explained later, are payable to

¹Joseph Doddridge Brannan, *The Negotiable Instruments Law Annotated* (1920), p. 2.

²The details governing the United States Bonds and Notes which are similar to the principles laid down in this chapter can be found in *Circular No. 141 of The Treasury Department of the United States*.

bearer or to order, and when detached are negotiable. When the coupons are separated from the main instrument before maturity, they can be negotiated like a promissory note.

The most common form of issuing the coupon is to the bearer. If a negotiable bond is made payable to a payee or order it can be transferred by endorsement. But if the bond is made payable to a payee or bearer, all that is necessary to make a transfer is to make a delivery of the instrument.

A bond may be registered, either as to principal alone or both the principal and interest. When the principal alone is registered, the interest coupons are negotiable and are payable to any holder on their due date, but the principal can be paid only to the registered owner. The registration is made by the proper official writing the name of the owner in a space provided for the purpose, and recording this ownership on the books of the company. Where the indenture provides that coupon bonds may later be registered as to principal, the coupon bonds have a form provided on the back of the bond where the name of the owner may be inserted by the trustee or agents for the company as being entitled to the principal when due.

When both the principal and interest are registered, the coupon is usually returned to the corporation and a registered bond issued to the owner of the bond. The registration is recorded in the manner described in the preceding paragraph. A coupon bond can be made a fully registered bond by sending it to the company and having the company or its agents detach the coupons and fill in the owner's name on the space ordinarily provided to register the bond as to principal. The owner then has in his possession the indenture of a bond with his name written on the back by the company, and the company is in possession of the coupons. When the interest comes due the owner, as in an original registered bond, the company sends a check direct for the interest payments.

The practice with most companies, where a fully registered bond is to be converted, is to issue a new bond with coupons attached, except that the coupons already due are detached. In cases where a bond has been fully registered by detaching the coupons and the owner desires to change back to the original

form, the bond is released to bearer after the owner has signed a power of attorney. Sheets of coupons bearing the same number as the indenture are again attached. Such a procedure, however, is unusual.

Transfer and Assignment of Bonds.—Bonds may be made payable in one of two ways, either to a stated payee or to the bearer. In the former the transfer must be in writing, but in the latter, the bond may be transferred without any written form of agreement. It is then in common practice called a negotiable instrument. The space for the name of the payee is then left blank and the bond is payable to the bearer, and can be delivered to any one without any other formality than affects the ordinary sale of goods across a merchandise counter.

Generally bonds are transferred by a bond power of attorney, which is in the form of an assignment, the holder's name being attested to by a witness.¹ The only place where the holder of the bond is entitled to write upon it is where the bond is a fully registered form and has an assignment form printed on the back. The proper filling in of this assignment form is necessary to make a good delivery. It cannot be too strongly emphasized that the owners themselves should not mark or in any way make a mark that indicates ownership. When a mark is made upon a bond that can in any way be construed as meaning ownership, the New York Stock Exchange has ruled that this bond is a marked bond and not a good delivery unless sold as a marked bond.

When a bond has been lost or destroyed, the owner may compel the corporation to issue a new bond if proof can be shown of the loss or destruction of the bond.² With stolen bonds the case is different. If a negotiable bond is stolen and later purchased by a bona fide purchaser, the owner from whom the bonds were stolen has no claims against the corporation or municipality. As long as the holder of a bond is a bona fide one, the title is vested in his name. Where the bond has been

¹One Stock Exchange firm will accept such a power from another Stock Exchange house attached to a bond, if the signature is guaranteed, otherwise it must be acknowledged before a Notary Public.

²Chesapeake & Ohio Canal Company v. Blair, 45 Md. 102.

stolen after the maturity date, the title is still vested in the true owner and not the bona fide holder.

When bonds are not negotiable, the purchaser of the stolen bonds cannot secure a vested title in the bonds. Consequently, if new bonds have been issued for the stolen bonds, the true owner may again secure possession of them through his vested title which has not been changed.

Coupons.—A coupon severed from the bond is a separate and negotiable security. It is a separate contract and is not a part of the bond. Each coupon constitutes an obligation of the company which has promised this definite sum upon a certain date. A coupon has no right to interest until its due date, and each coupon is valued at the discount of its face value to the date of its respective maturity. When detached, it can be considered as an independent security or obligation of the company. Suit can be brought for each of these detached instruments only as they come due, and the individual holder cannot take any of the property under the mortgage apart from the other holders.

If the coupon is not independently negotiable, separate action for its recovery cannot be brought. Action can be brought only with the bond, for the coupon is not then a separate instrument, but a part of the bond. The statutes of some states, hold, however, that if the bond is negotiable, the coupons are negotiable, as a part of the instrument, and the court decisions of other states have supported the same claim. In disputed cases, it is an accepted rule that the rules governing the principal would have precedence over the coupons.

The security of the interest coupons is the same as that of the principal of the bond. Any accrual of interest is entitled to its proportional share in the property. Any loss due to foreclosure is borne proportionally between the bonds and the coupons. Normally, in foreclosure, coupons are paid in the order in which they come due, all coupons and the principal of the bond having equal priority. Where provisions in the mortgage give priorities, these priorities, especially where a mortgage secures several varieties of bonds, have been fully recognized by the courts.

When a coupon becomes due, the owner clips it from his bond and presents it for payment to the trustee or at the office of the corporation agent designated in the mortgage. If the corporation has not provided a place for the redemption of coupons, they must be presented or sent to the corporation's own office. The common practice, where they must be forwarded, is to deposit them with a bank, which can more easily and safely attend to their collection. Formerly, as long as the coupon was negotiable, any one who presented it had the right to collect it, and no evidence of ownership of the bond need be shown. The Federal Tax laws have practically changed this, in that an ownership certificate describing the bonds must be presented with all coupons other than municipal and government bonds, on which no normal income tax is to be collected. This makes it much more difficult for coupons not in the hands of rightful owners to be cashed. While it is an indication of lack of foresightedness to do so, the holder can present his coupon at any time after it is due and demand payment, though he has no claim for interest upon the amount of interest due. Upon payment, the coupons are cancelled.

The practices of the states differ in dealing with the interest on coupons due and not paid by the corporation. In a number of states, coupons which are detached and negotiable and in possession of a holder other than the holder of the principal have a legal claim to interest when the coupon is overdue and not paid. The decisions of the courts have also varied where the coupons are in the hands of the holder of the bond, attached or detached. The weight of authority, however, has ruled against the allowance of interest on coupons in the hands of the holder of the bond. Where the rate allowed is not fixed by the mortgage, it is usually fixed by the court under the restrictions of the state statutes.

If the bond can be called before the due date given on the coupon, the recital on the coupon should provide for its payment at the time of the redemption of the bond. As the coupon is a separate negotiable obligation,¹ it is essential that all qualifications or limitations should appear upon its face.

¹Continental Securities Co. v. N. Y. Central R. R., 217 N. Y. 119; 1916.

SECTION II.

VALIDITY AND LEGALITY

Problems of validity and legality of bonds are largely confined to the issue of minor civil divisions. Questions involving validity and legality of issue seldom arise in connection with private corporations. In private corporations, the holder of the bond is secured by actual property and the legality of the mortgage securing the bond is attested as to its validity by the attorney. The corporate mortgage is rarely ever subjected to ignorant and inexperienced attorneys as to the legality of issue. A corporation needs no coaching to be made aware of the costliness of such procedure, and the financial loss caused by the lack of strict conformity to the legal requirements of the mortgage needs no argument. This, coupled with the claim upon a specified property in all corporate bond issues, has also very much simplified the difficulties involved in the legality of corporate issues.

In the civil divisions, where only the bond instrument is issued,¹ this problem in the past has always been a large and all-important one. The not infrequent ambiguity of statutes, as well as the great variation of statutes, the differences in judicial decisions, and the large number of local officials often inexperienced who must pass upon these, have been accountable for a large number of the difficulties that have arisen in the past over the validity and legality of the minor civil division issues. The increasingly more rigid interpretation, and the holding to strict accountability of the civil divisions that have received the benefits of the issue, have had a lasting influence upon careless officials. But a very much larger influence in eliminating these objections has been effected by the care of the investment bankers in underwriting municipal issues. Any issue since 1900 that can lay claim to invalidity or illegality is indeed rare. The claims to invalidity have practically all been raised concerning issues brought out before 1900. Further, through the efforts of the bankers and the interpretation of the courts, many

¹See chapter xxxiv for the rare exceptions to this statement.

corrections in recent years have been made in municipal bond law, and considerable standardization has been effected in the judicial decisions of the several states. Such a mistake in violation of statute, as a municipality voting one day too soon, after a former rejection of the same issue by the voters, as occurred in one municipality, has little chance of escaping the scrutiny of the experienced banking firm. Municipal issues rejected by investment bankers, for varying degrees of errors in conforming to legal requirements, amount to millions of dollars. But this does not eliminate the necessity of continued attention to this problem.

As the validity and legality of municipal issues are discussed more in particular under Civil Loans, only a general statement of these subjects is given here. It would, however, be impractical and hardly necessary in this treatise to consider other than the more important and more common causes of illegality. These causes group themselves about the more important headings, considered later in discussion of the legal requirements of municipal issues. They are: (1) the purpose for which municipal bonds may be lawfully issued; (2) the authority or power to issue municipal bonds; (3) the procedure and acts of the civil authorities; (4) the ratification of the issue; (5) the execution, delivery, form, and registration; and (6) the violations of tax and bond limitations and restrictions.

Continued simplification in the regulation and method of issues is decreasing the larger part of the difficulties involved in these problems. Reform in municipal legislation, however, has never gone forward with great alacrity. Even with the increasing tendency of the courts to declare an invalid issue legal and to hold liable a municipality which has appropriated the funds of an issue, an appeal to the courts is not only a doubtful procedure but a costly one, and validation from this source must be accepted as a last resource for a bond already in hand.

Courts have constantly held in recent years that the recital on the face of the bond is a sufficient cause for estoppel, that is, to bar the municipality from repudiating the obligation. This has facilitated the standardization of bond forms. It must be

observed, however, that these recitals serve as an estoppel only where they are executed by those authorized by law to issue them. Further, the security representing to have a legitimate claim against the municipality must be in the hands of a bona fide holder. The decisions affecting these recitals have not had reference especially to the recitals as specified by law, but to the statements which certify that certain acts have been performed and certain facts exist which, if they were performed or did exist, would make the bond a valid claim in the hands of a bona fide holder. The statement of such facts may not even be required by the statute, and the estoppel may merely be based on the fact itself. This does not, however, bar the operation of the law where it does affect these recitals. "Nothing," states one court decision, "is better settled than this rule—that the purchaser of bonds such as these, is held to know the constitutional provisions and the statutory restrictions bearing on this question of the authority to issue them; also the recitals of the bond he buys; while on the other hand, if he acts in good faith and pays value, he is entitled to the protection of such recitals of facts as the bond may contain."¹

As with other securities listed on the stock exchange, a trustee's certification of the authenticity of the issue is required.² This is an excellent added safeguard upon the legality of the few municipals issued, but only a very small fractional share of municipals issued ever appears on the Exchange.

The approval of a municipal bond issue by some law firm versed in municipal law has been to the present time, as stated, by far the most important indirect guarantee of the correctness of the issue to the investor. Long experience and care upon the part of these bond attorneys have made their approvals so accurate that we accept their decisions on validity without further examination. Increasing standardization and accepted forms have made this more possible. This approval of the bond attorney must not be confused with the certification of the trus-

¹Lake County v. Graham, 130 U. S. 674, 9 Sup. Ct. Rep. 654, 32 L. Ed. 1065.

²See Topic on Exchange Rules.

tee. They are different. The trustee merely certifies to the genuineness; the attorney, to the validity and the accuracy of the issue.

The thing which is most to be desired and which has been slowest in development, is a common certification, made by state officials of the validity of all civil obligations. Only seven states have some direct or indirect form of certification. The earliest and still the most comprehensive of these laws is that of North Dakota (adopted in 1889), which requires that all civil loans of the political divisions of the state must meet the approval (as to their legality) of the State Attorney-General and receive his official certification. They are then registered by the State Comptroller after which their validity cannot be contested.

While it is true that the danger of future defalcations is continually decreasing, its entire elimination would be desirable and would be easy to secure. Thousands of dollars now needed annually in taxes to pay for the examination of the legality of municipal bonds, could be saved by the municipality if original authorization and certification of validation by some state official or officials were required. Blind adherence to custom is probably the explanation. It is only a question, however, of time, when the simplicity and the effectiveness of this method of procedure will be recognized.

CHAPTER IX

INTEREST RATES AND NET YIELD ON BONDS

SECTION I.

A corporation or municipality issues bonds in return for funds advanced. On the bond instrument appears a rate of interest and stated dates of interest payment. This rate of interest is called the nominal rate. When the amount authorized is to be issued at intervals, the rate will not appear in the mortgage because it may be necessary to change the rate with each issue to correspond with the changes in market conditions. Consequently, bonds of the same authorization, but issued at different times, may appear in the same market at different rates. This difference between bonds of the same authorization issued at different rates, however, will become adjusted in their market price, if the conditions of issue are the same.

Normally, the board of directors or issuing body of a political division will issue bonds at a rate which will enable it to sell the bonds at par. The more accurately the conditions which affect bond values have been judged, the less will the prices fluctuate in the market. If the investment-bankers underwriting the issue are called upon to give undue support to the market in order to sustain it, the market price will not give a true reflection of actual values. Such prices in a narrow market would be very deceptive. This kind of market support, however, is more prevalent in speculative issues; a strictly investment issue will stand upon its merits.

The rate of interest, as implied in previous chapters, cannot remain constant. The competition of capital, affected by the existing current market conditions and changing risks peculiar to the corporation, will cause a change in interest rates, and the rates on bonds will tend to move correspondingly to these

changes. In the chapters on Market Influences on Security Prices, it is clearly shown that the most important influence upon the investment bond rate is the change of the standard money, *i. e.*, the commodity (gold) in which the rate is measured. The old 3 per cent corporation bonds issued prior to 1900 cannot find a market during the next decade.

The Net Interest Yields.—Bonds are often bought and sold at prices different from their par values. As a result the rate of interest received by a purchaser on his investment is not in general the nominal rate of the bond, being precisely the same only when the bond is bought at par. The net interest yield, when the price is not par, is calculated by methods illustrated in the following examples.

The simplest case is that of bonds known as perpetual bonds, in which there is a periodical interest payment but the principal is never repaid. It should be said parenthetically that few of these issues exist. Suppose a perpetual bond of par value \$100, with a nominal interest rate of 4 per cent payable semi-annually is bought at 104, that is, for \$104. The semi-annual interest payment is $\frac{1}{2}$ of 4 per cent of \$100 or \$2.00. To find the rate on the investment of \$104, divide 2 by 104, the quotient is .01923. The interest rate is 1.923 per cent for a half year, or 2×1.923 per cent = 3.846 per cent per annum payable in semi-annual payments. If the interest on the bond is payable quarterly each quarterly payment is \$1.00. To find the rate on the investment of \$104, divide 1 by 104; the quotient is .009615. The interest rate is .9615 per cent for a quarter year, or 3.846 per cent per annum payable quarterly. If the interest were payable annually, the calculation is shorter. Divide 4 by 104 and express in percentage. The result is 3.846 per cent per annum payable annually. The answer is the same in each case except for the payment period. It is well to note fully the difference, for example, between 3.846 per cent payable annually and payable semi-annually. In the former case there is an interest payment at the end of the year on \$1,000 of \$38.46. In the latter cases the security holder has in his possession the first interest payment of \$19.23 for the last six months of the year, on which he may receive interest. If interest is received

for this at the same rate, he receives at the end of the year not only a second payment of \$19.23 but \$0.37 additional making the total interest for the year, \$38.83.

A more common case is that of bonds which mature at a certain future date. Suppose, for example, that a \$100 bond bearing 5 per cent per annum, maturing in 20 years is bought at \$102.55. What is the net interest yield? The calculation differs in this case from the preceding through the fact that at maturity the purchaser receives \$2.55 less than he invested. This has to be charged off against the annual interest. The calculation of the precise amount thus to be deducted from the interest rate involves rather technical mathematical formulæ, but tables have been constructed which simplify the work, and we shall make use of them without discussing the manner of their construction. A standard four-place bond table is most commonly used. When large sums of money are involved, extended bond tables¹ should be used.

All the factors for obtaining the yield then are;

- (1) The cost price of the bond,
- (2) The par value of the bond,
- (3) The amount of the annual interest paid,
- (4) The length of the interest periods or number of interest periods,
- (5) The term of the life of the bond.

Obtaining the Net Yield With the Use of the Bond Table.—

On the sample page given from Rollins' tables of bond values all the nominal rates based on the par value of the bond are given across the top of the table and range from 3 to 7 per cent with a duration of 20 years. The per cents given in the left hand or first column are the net yields, with the discount or premium price paid according to the nominal rate in each of the columns to the right of the net yield. The net yields are given in one-eighth, one-tenth, and one-twentieth per cents.

¹Montgomery Rollins, *Bond, Stock and Interest Tables* (18th Edition), 1912. Lawrence Chamberlain also has an unusually clear and complete mathematical analysis of bond yields and prices in his *Principles of Bond Investments* (1911, chapters xxxiv, xxxv, and xxxvi), which those interested in the mathematical construction of a bond table will find very valuable. For a more complete treatise see *The Accountancy of Investments*, by Charles Ezra Sprague, revised by Leroy L. Perrine (Ronald Press, N. Y., 1914, p. 371).

FROM ROLLINS TABLES

20 Year—Interest Payable Semi-Annually

Per Cent Per An.	3%	3½%	4%	4½%	5%	6%	7%
2.90	101.51	109.06	116.60	124.15	131.70	146.80	161.89
3.	100.00	107.48	114.96	122.44	129.92	144.87	159.83
3.10	98.52	105.93	113.34	120.75	128.16	142.98	157.81
3½	98.15	105.55	112.94	120.33	127.73	142.52	157.31
3.20	97.06	104.41	111.75	119.09	126.44	141.13	155.82
3¼	96.34	103.66	110.97	118.28	125.59	140.21	154.83
3.30	95.63	102.91	110.19	117.47	124.75	139.30	153.86
3.35	94.93	102.17	109.42	116.66	123.91	138.40	152.89
3 ⅝	94.58	101.81	109.04	116.27	123.49	137.95	152.41
3.40	94.23	101.44	108.66	115.87	123.08	137.51	151.93
3.45	93.54	100.72	107.90	115.08	122.26	136.62	150.98
3½	92.85	100.00	107.15	114.30	121.45	135.74	150.04
3.55	92.17	99.29	106.41	113.52	120.64	134.87	149.11
3.60	91.50	98.58	105.67	112.75	119.84	134.01	148.18
3 ⅝	91.16	98.23	105.30	112.37	119.44	133.58	147.72
3.65	90.83	97.88	104.94	111.99	119.04	133.15	147.26
3.70	90.17	97.19	104.21	111.24	118.26	133.30	146.35
3¾	89.51	96.50	103.50	110.49	117.48	131.46	145.44
3.80	88.86	95.82	102.78	109.74	116.70	130.63	144.55
3 ⅞	87.90	94.81	101.73	108.64	115.56	129.39	143.22
3.90	87.58	94.48	101.38	108.28	115.18	128.98	142.78
4.	86.32	93.16	100.00	106.84	113.68	127.36	141.03
4.10	85.09	91.86	98.64	105.42	112.20	125.76	139.32
4¼	84.78	91.54	98.31	105.07	111.84	125.37	138.90
4.20	83.87	90.59	97.31	104.03	110.75	124.19	137.63
4¼	83.27	89.96	96.65	103.35	110.04	123.42	136.80
4.30	82.68	89.34	96.00	102.66	109.33	122.65	135.98
4 ⅝	81.80	88.42	95.04	101.65	108.27	121.51	134.75
4.40	81.51	88.11	94.72	101.32	107.93	121.14	134.35
4½	80.35	86.90	93.45	100.00	106.55	119.65	132.74
4.60	79.22	85.72	92.21	98.70	105.19	118.18	131.16
4 ⅞	78.94	85.42	91.90	98.38	104.86	117.82	130.77
4.70	78.11	84.55	90.99	97.43	103.86	116.74	129.61
4¾	77.57	83.98	90.39	96.80	103.20	116.02	128.84
4.80	77.02	83.40	89.79	96.17	102.55	115.32	128.08
4 ⅞	76.22	82.56	88.90	95.24	101.59	114.27	126.95
4.90	75.95	82.28	88.61	94.94	101.27	113.92	126.58
5.	74.90	81.17	87.45	93.72	100.00	112.55	125.10
5.10	73.86	80.09	86.31	92.53	98.76	111.20	123.65
5¼	73.61	79.82	86.03	92.24	98.45	110.87	123.29
5.20	72.85	79.02	85.19	91.36	97.53	109.87	122.22
5¼	72.34	78.49	84.64	90.78	96.93	109.22	121.51
5.30	71.85	77.97	84.09	90.21	96.33	108.57	120.81
5 ⅝	71.11	77.19	83.27	89.36	95.44	107.60	119.77
5.40	70.87	76.94	83.01	89.07	95.14	107.28	119.42
5½	69.90	75.92	81.94	87.96	93.98	106.02	118.06
5 ⅞	68.72	74.68	80.64	86.59	92.55	104.47	116.38
5¾	67.57	73.46	79.36	85.26	91.15	102.95	114.74
5 ⅞	66.43	72.27	78.11	83.95	89.78	101.46	113.13
6.	65.33	71.11	76.89	82.66	88.44	100.00	111.56

Though the sample page does not indicate all the periods of duration used, the complete tables will give a table for each six months period from six months to 30 years, from 30 to 50 years annually, and from 50 to 100 years every five years. To illustrate the uses of the table: take a \$100 bond bearing 5 per cent with 20 years to run and purchased at \$102.55, what would the bond yield? Take the column with the nominal rate of 5 per cent at the head of the column and run down the column until you come to \$102.55, the price paid for the bond. Now proceed at right angle to the left from this figure to the extreme left column, which gives the net yield, and you have the net yield of this bond of 4.80 per cent.

This computation is made from an abbreviated table which is within approximately one cent of the \$100 bond of 20 years given above. Investment Bankers use the so-called extended bond tables,¹ which give the result to the nearest cent on each \$1,000,000; otherwise the losses on the amounts to the bank would be very large during the course of the year. For a \$1,000 bond, the amount for \$100 would be multiplied by 10, and for a bond of any other denomination, by whatever multiple it is of one hundred dollars. Where the extended tables are not used the amount of the error given above should be recognized in the computation.

In the above problem, it is assumed that the bond is purchased upon an interest payment date. More often the purchase of a bond will be made on a date other than the interest date. This will necessitate the allowance for accrued interest to the seller of the bond from the last interest date to the date of sale. This accrued interest is easily obtained from interest tables which are usually included in all volumes of bond tables. Objection is constantly made by the uninitiated buyer against the payment of this accrued interest, as he considers it an addition to the price of the bond for which he receives no reimbursement. The repayment is made to the buyer of the bond in the interest coupon at the next interest coupon payment date. Let us assume in the previous problem that the interest payment dates are on January first and July first and the bond was sold

¹The abbreviated tables are four-place decimal tables, the extended tables eight-place tables.

on the 30th of January. The purchaser is then only entitled to the remaining five months' interest for the interest interval between January first and July first. In order to pay the seller for the thirty days (after January first) during which he has owned the bond, the interest for this period (which is included in the interest-coupon for the whole period) is indirectly deducted by adding the interest for this period to the price of the bond. And as the interest-coupon paid on July first includes the interest for the full period of six months, the purchaser is reimbursed for this outlay on the receipt of this interest payment upon July first.¹

In the problem above the accrued interest for thirty days, *i. e.* \$.4167, added to the price of the bond of \$102.55 gives a total cost of \$102.9667. The total interest coupon received on July first is \$2.50 (the yearly amount \$5.00) in which is included the .4167; or separating the amount of interest due the seller January 30th and the amount due to the purchaser for the five months he will have owned the bond until his next interest payment on July first, the net allotment of the purchaser for his five months will be (July 1st) the \$2.50, the amount received, less his advancement of .4167, or \$2.0833.

Considerable confusion arises from the different uses of the term "flat price" of bonds. When the interest is added to the base price and the bond is quoted as at a "flat price," this term, of course, includes the accrued interest. The rulings of the New York Stock Exchange on income bonds and bonds purchased after default designate the "flat price" of a bond as the price without the inclusion of the accrued interest; this gives a double meaning to "flat price," if the previous practice is also followed. With the exception of bonds purchased after default and income bonds, bonds on the New York Stock Exchange are dealt in at a price and interest. In ordinary commercial practice "flat price" does mean price and interest though interest is never taken into consideration, so that in computing the interest yield, the practice is to subtract the interest and follow the method of securing the net yields at a price.

¹There is a slight loss to the purchaser of his interest upon the interest.

Net Yields of Unrecorded Bond Table Prices.—One does not go far in the computation of bond yields before he is made aware that the prices at which bonds are currently sold on the market do not correspond exactly with those in the bond tables. The price or the net yield will be between two prices or two net yields, and this necessitates interpolation, as the process is called in mathematics, to secure the price or net yield of the bond price not appearing in the bond table.

A number of methods of interpolating are in use depending on the accuracy desired. The simplest one, which is accurate enough for most purposes, especially when only small sums of money, short periods of time, and low rates of interest are involved, will be illustrated by examples. What is the net yield of a 5 per cent 5 year bond purchased at \$1,020?

Under the five year table in the 5 per cent column, the price of 102 is between the tabulated prices¹ of 101.77 with a yield of 4.60 per cent, and 102.22 with a yield of 4.50 per cent. The net yield of the bond at 102 must then be somewhere between 4.60 and 4.50 per cent; which may be approximated by proportion.

Price of bonds below and above.	Price of Bond Purchased.	
102.22.....minus.....	102.....	leaves .22
101.77.....from.....	102.....	leaves .23
		<hr/>
		.45

The total difference in the two prices on either side of the price of the bond purchased is .22 plus .23 equals .45.

Price of bonds above and below.	Net Yields
102.22.....	4.50
101.77.....	4.60
	4.60 — 4.50 = .10

The difference in the net yield for these two prices is .10 which corresponds to a difference of .45 in the prices. The yield is seen to be nearer to 4.50 than to 4.60. The difference between the actual yield and 4.50 is given by proportion: $22 : .45 = X : .10$.

¹In all of the problems of this chapter, the Montgomery Rollins four place tables have been used. This must be observed in comparing the same problems computed with the eight place tables.

The result is $X = .05$, taking the nearest number in the second decimal place. Hence the yield is $4.50 + .05 = 4.55$ per cent.¹

The Price of a Bond Where the Net Yield Does Not Appear in the Bond Table.—Again, the method of proportion is essential in securing the result. Suppose a 40 year, 5 per cent \$1,000 bond is purchased to yield 4.16, what is the price? The two nearest net yields above and below this net yield in the bond table are 4.125 and 4.20 per cent, with prices of \$1,170.70 and \$1,154.40.

Subtracting the yield above and below the one to be obtained, we have: 4.20 minus 4.125 which equals .075.

Subtracting the price of the bonds above and below at these net yields, we have:

\$1,170.70 minus \$1,154.40 which equals \$16.30.

Then .075 is the yield for \$16.30 for the period.

The nearest yield to 4.16 is 4.125 and the difference .035.

The proportion then is: .075 : .035 :: 16.30 : X.

X equals \$7.61, the amount which yields .035. Subtracting this \$7.61 from \$1,170.70, the known price of the bond yielding 4.125, the price of the bond yielding 4.16 is procured: \$1,170.70 minus \$7.61 equals \$1,163.09 (the price of the bond).

While this result receives full commercial acceptance, the proportion or interpolation method in finding an unrecorded price, as with finding an unrecorded yield, is slightly inaccurate. This inaccuracy increases with the length of duration and the increase of the premium, but decreases with the shorter maturities and with discount bonds. For methods of correcting these slight errors not recognized in ordinary practice, the reader is again referred to Sprague.²

Use of Bank Discount.—Banks purchasing bonds having less

¹As this is not a mathematical treatise on investments, it is the purpose in this chapter only to cite the more essential forms of computation ordinarily used. The reader desiring a more exhaustive treatment of the mathematics of investments is referred to such works as Sprague and Perrine previously cited.

²Charles Ezra Sprague, *Extended Bond Tables* (1909), see explanatory contents in preface. Also see *Accountancy of Investments*, by the same author.

than twelve months to run or short time notes, do not use bond tables for securing the net yield or price of a bond: instead, they use bank discount. This gives a slight advantage to the banker, as the money, in addition to the interest earned on the amount invested, earns the interest on the discount.

What would, for example, be the difference in price of a 4 per cent \$5,000 bond having three months to run when the price is computed on the basis of the bank and bond discounts respectively at 4 per cent.

<i>Base Price</i>		<i>Discount Price</i>	
Principal at Maturity	\$5,000.00	Principal	\$5,000.00
Base price 6 months before maturity..	4,950.50	Discount	50.00
(Present worth)			
	<hr/>	Discounted price...	\$4,950.00
Interest on base price	49.50	Interest on discount price	49.50
	<hr/>		<hr/>
Principal	\$5,000.00	Price to Banker..	\$4,999.50

(Discounted Price) \$4,950 plus (Interest) \$49.50 equals \$4,999.50 (Ultimate cost to banker). (Principal at Maturity) \$5,000 minus \$4,999.50 equals 50c (Profit to banker).

Again, assuming a 6 per cent \$5,000 bond having six months to maturity, what would be the difference in the price, if sold to yield 5 per cent or if sold at a discount of 5 per cent to a banker?

<i>Basis Price</i>		<i>Discount Price</i>	
Principal at Maturity	\$5,000.00	Principal	\$5,000.00
Base price for six months to net 5%	5,024.50	Interest at maturity	150.00
	<hr/>		<hr/>
		Discount @ 5% for 6 months	128.75
			<hr/>
		Discounted price...	\$5,021.25

\$5,024.50 minus \$5,021.25 equals \$3.25.

Interest on \$3.25 for 6 months at 5 per cent per annum equals .0812. \$3.25 plus .0812 equals \$3.3312 (profit to banker).

SECTION II.

Bonds which are purchased above or below par, as maturity approaches, automatically decline or increase to par, the price at which they are paid off by the issuing corporation. Consequently, in a premium or discount bond, the purchaser for an investment must make allowance for this decrease or increase in order to keep his original principal invested intact. With the purchaser of a bond for speculative purposes this is not essential, as he is only concerned in the profit he can secure through the fluctuation in prices of the principal, usually over short periods. The same principle in buying and selling is followed by the speculator in securities as by the dealer in commodities. In an investment, a bond is purchased for the primary purpose of its income; and as an investment, the original capital is permanent, though the bond, like anything which must be sold in the market, is subject to market fluctuations. These fluctuations, however, can be computed with considerable mathematical accuracy. As far as the purchaser is concerned, these fluctuations have no bearing upon either principal or income, if the bond is held until maturity. If, however, the holder of the bond decides to sell his bond upon some future date, the price of the bond (assuming the market is constant) purchased at par or discount will be the present worth of the principal from the particular date of sale to the date of maturity. The book value upon the different interest payment dates of a premium or discount bond is computed by amortization for premium bonds and accumulation for discounted bonds. As one banking firm defines amortization: "Amortization . . . is the gradual charging off and extinction of the premium paid for a bond, by setting aside at each interest period a certain amount of the fixed interest the bond bears, the amounts set aside being so calculated that at the maturity of the bond they will equal the premium paid."¹ If a new purchaser obtains the bonds, this net return is then the same as the previous holder received at the price which he paid.

The statutes of New York affecting savings banks now

¹Guaranty Trust Company (N. Y. pamphlet), *Amortization*, p. 1.

require that profits be paid only after "providing, in a manner approved by the superintendent of banks, for the amortization or gradual extinction of premiums or discounts on all securities."¹

Also "respecting trust companies . . . stocks or bonds . . . shall not be valued . . . at a higher price or value than their investment value as determined by amortization, etc."² This requirement should be placed by every state on every financial institution, such as banks, insurance companies, building and loan associations which possess funds that are more or less held in public trust. A good deal of litigation which has been necessitated through the failure of wills to define clearly principal and interest could have been easily avoided. If, for example, the premium on bonds so purchased is not to be set aside out of income to extinguish this premium at maturity, the will should so state. Whether a bond is to be sold or not, any financial institution or any individual who pretends to keep an accurate account of affairs must adopt the method of accumulation and amortization as the basis of an accounting system.

The most frequent makeshift for the allowance of the premium or bond discount is to permit this amount to remain on the books at the original cost price until maturity and then to add or write off in a lump sum the total amount of the discount or premium. There is no need to discuss the inaccuracies of such an accounting system; they are obvious. Another common practice among some accountants is to write these amounts off to profit and loss. While this will give an accurate result of all combined accounts, it gives no account of the profit of a particular bond sold. Lump estimates can be made, but lump estimating is tabooed in every other line of endeavor; why should it be continued in financial accounts where accuracy is most essential? It is in view of these suggestions that this schedule for computing book values is given.

Book Values on Interest Payment Dates of Bonds Purchased at a Premium.—If a bond is purchased at a premium, the rate of interest actually earned is less than the nominal rate of the

¹Section 123.

²Section 159.

bond. To secure the price of a bond purchased at a premium, as already stated, the cost, the par value of the bond, the amount of the interest paid, the length of the interest periods or number of interest periods, and the duration of the bond must be known. With these facts, the price of a bond purchased at a premium can be determined by reference to the bond tables. The procedure is best illustrated by a problem.

If a bond on January 1, 1916, of the par value of \$1,000 bearing interest at 5 per cent payable semi-annually and maturing in three years is purchased for \$1,028.00, the yield or investment basis is 4 per cent (see previous topic for method of computation). With \$1,028.00 as the principal with a yield of 4 per cent the total amount of interest received on the next interest payment of July 1, 1916, would be \$20.60, the amount which should be credited to the holder of the bond as income. The balance left after deducting this amount from the actual cash income of \$25 received leaves \$4.40, which should be credited to the sinking fund with the other sinking fund allowances to cancel the premiums at the maturity of the bond. In this instance the investment book value for July 1, 1916, will then be the difference between the book value of the purchase price and the amortization fund of the period; *i. e.*, \$1,028.00 minus \$4.40 which equals \$1,023.60. In this same manner the sinking fund and investment value for each period are determined for the interest payment date. The total sinking fund at any particular interest date is the sum of all the funds set apart. The total capital account or principal, as related to the particular bond—the bond accounts should indicate this at any interest date—would be the book value of the bond on that particular date plus the accumulated sums of the sinking funds.

These book values and amortization or sinking fund requirements can be found even more readily by the use of bond tables. The amount of the amortization for any particular period is determined by subtracting the book value on any interest date from the book value on the previous interest date. In the problem just used the first book value is \$1,028.00. By turning to the pages of the bond table in turn headed 3, $2\frac{1}{2}$, 2, $1\frac{1}{2}$, $\frac{1}{2}$ years and checking down the column headed by the nominal

rate 5 per cent to the price given in that column opposite the 4 per cent net yield in the left column, we have the book value for each one of these interest payment dates. In the problem above (represented in the complete schedule below), the book value on January 1, 1916, is \$1,028.00 and on July 1, 1916, it is \$1,023.60; and the difference between these two book values is \$4.40, the amortization sinking fund. As the cash interest payment is constant, the net income is obtained by subtracting the amortization sum from the cash interest. The cash interest being \$25.00, the formulæ would be \$25.00 minus \$4.40, which equals \$20.60. Thus the interest received equals the net interest plus the amortization, either in the computation of an individual period or in the total of these sums at maturity which verifies the final result.

If there is more than one bond of the same issue the various items in the schedule below would be multiplied by the number of bonds.

Schedule for a Premium Bond. (Par of Bond \$1,000)

Date	Semi-annual Cash Int. 2½ per cent	Semi-Annual Net Int. 2 per cent	Amortization Fund	Book Value
Jan. 1, 1916				\$1,028.00 (Cost of Bond)
July 1, 1916	\$25.00	\$20.60	\$4.40	1,023.60
Jan. 1, 1917	25.00	20.40	4.60	1,019.60
July 1, 1917	25.00	20.40	4.60	1,014.40
Jan. 1, 1918	25.00	20.30	4.70	1,009.70
July 1, 1918	25.00	20.20	4.80	1,004.90
Jan. 1, 1919	25.00	20.10	4.90	1,000.00 (Par Value of Bond)
	<hr/> \$150.00	<hr/> \$122.00	<hr/> \$28.00	

True interest plus Amortization equals cash interest.

\$122.00 plus \$28.00 equals \$150.00.

\$1,000, *i. e.*, the amount received at maturity plus the total amortization fund equals the original cost of bond, *i. e.*, \$1,000 plus \$28.00 equals \$1,028.00.

Book Values on Interest Payment Dates of Discount Bonds.

—If a bond is purchased at a discount the net yield to the buyer is more than the nominal rate of the bond. Instead of writing off a required amount to provide for the cancellation of the premium, an accumulation fund must be charged against the bond and credited to the income account to offset the increasing value of the bond as it approaches maturity.

Again illustrating the principal by a problem: Assume a bond on January 1, 1916, of the par value of \$1,000 bearing interest at 4 per cent, payable semi-annually and maturing in 3 years is purchased for \$972.50, which makes the net yield on the investment 5 per cent. The amount of the semi-annual payments on the investment of \$972.50 would then be \$24.30. Subtracting from this latter sum the cash interest of \$20.00 received, the accumulation fund of \$4.30 is secured. The book value on July 1, 1916, is the original book value of \$972.20 plus the accumulation fund of \$4.30 which equals \$976.80, the basis for securing the net yield for the next interest period. The book value of the bond on any interest date is then the original purchase price plus the accumulation funds of the previous periods.

The book value on each succeeding interest date approaching maturity is increased by the amount of the accumulation fund, which is found by subtracting the last book value from the previous book value. Adding this difference to the actual cash interest received gives the net yield. The addition of all the previous sums at any interest payment date will equal the total accumulation, which if added to the purchase price will also give the book value. In the schedule constructed below the book value or purchase price on January 1, 1916, according to the bond table is \$972.50; on July 1, 1916, it is \$976.80. The difference between the book values on these respective dates is \$4.30, which is the accumulation fund. This latter amount (\$4.30) plus the cash interest of \$20.00 received, equals \$24.30, the actual net yield to be credited to the holder of the bond. While the \$4.30 is not received in cash at this particular date, it does represent the present value of the sum to be received at maturity by the holder, which is after all what the accumulation fund purports to set forth. If the cash interest alone is credited to the holder, he does not receive the credit for the full amount due upon the actual cash investment made. Furthermore, if the accumulation is not considered, a profit accrues at maturity, and this accrued profit must be charged to surplus.

Schedule for a Discount Bond (Par of Bond \$1,000)

Date	Semi-annual Cash Int. 2 per cent	Semi-Annual True Int. 2½ per cent	Amortization Fund	Book Value
Jan. 1, 1916				\$ 972.50 (Cost of Bond)
July 1, 1916	\$20.00	\$24.30	\$4.30	976.80
Jan. 1, 1917	20.00	24.40	4.40	981.20
July 1, 1917	20.00	24.50	4.50	985.70
Jan. 1, 1918	20.00	24.70	4.70	990.40
July 1, 1918	20.00	24.70	4.70	995.10
Jan. 1, 1919	20.00	24.90	4.90	1,000.00 (Par Value)
	<hr/> \$120.00	<hr/> \$147.50	<hr/> \$27.50	

True interest minus the accumulation equals the cash interest.

\$147.50 minus \$27.50 equals \$120.00.

\$1,000, *i. e.*, the amount received at maturity minus the total accumulation funds equals original cost of the bond; \$1,000 minus \$27.50 equals \$972.50.

Bonds Purchased on Other Than Interest Dates.—It is an exception rather than a rule that a bond is purchased on a regular interest date. The common practice is to compute the accrued interest and adjust the price to the interest payment dates. As a majority of the corporation reports are rendered on January and July 1st and the income tax and savings bank reports are required on the same dates, it facilitates the work on the accounts in the corporation to keep the amortization accounts uniformly adjusted to these dates.

To illustrate the purchase of a bond on an odd date, assume that the previous premium bond was purchased on the first of March, 1919. The amortization for the bond must be found from March 1, to July 1, 1919, a period of four months. To obtain this, find the true interest for this period at 4% upon the cost price of the bond, \$1,026.58, and deduct it from the cash interest due (*i. e.*, on \$1,000 at 5% per annum for four months) which will give the amortization for the period of four months. The interest for four months on \$1,026.58 at 4% is \$13.69 and at 5% on the par is \$16.68 and the difference between the two is \$2.98. As this now adjusts the accounts to the regular interest dates, the procedure to be followed in the construction of the schedule is the same as that which was employed in the former problem.

Schedule for a Premium Bond Purchased at an Odd Date

Date	Semi-annual Cash Int. 2½ per cent	Semi-Annual True Int. 2 per cent	Amortization Fund	Book Value
Mar. 1, 1916	\$16.68	\$13.68	\$2.98	\$1,026.58 (Cost of Bond)
July 1, 1916	25.00	20.40	4.60	1,023.60
Jan. 1, 1917	25.00	20.40	4.60	1,019.00
July 1, 1917	25.00	20.30	4.70	1,014.40
Jan. 1, 1918	25.00	20.20	4.80	1,009.90
July 1, 1918	25.00	20.10	4.90	1,004.90
Jan. 1, 1919	————	————	————	1,000.00 (Par Value of Bond)
	\$141.68	\$115.08	\$26.58	————

True interest (\$115.08) plus amortization (\$26.58) equals (\$141.66), the cash interest. Principal paid (\$1,000.00) plus amortization (\$26.58) equals \$1,026.58, the original investment.

When the bonds are issued and mature at other than the accustomed dates used in business practice and the dates required for state reports, the schedule will have to be made without the use of the bond tables. Where this necessity arises, the first method as applied to Schedule I alone can be applied; *i. e.*, multiplying the investment value at an irregular period by the irregular net rate for that period to obtain the net income. This sum added to or subtracted from the coupon interest according to whether it is a premium or discount bond will give the amortization or accumulation. This sum whether derived from a regular or irregular period, if added or subtracted, as the case may be, will give the investment value for the next period.

If the bond can be called in at the will of the borrower before a stated time, the difference (at the time the bond is called) between the amount received and the investment value should be charged to profit or loss as the case may be. In all other cases the problem of amortization and accumulation in the optional bond is the same as that already discussed.

The Serial Bond Schedule.—The total cost of the serial bond or bonds will be the sum of the costs of each bond or group of bonds. The cost of each bond is based, as before, upon the rates and dates of their respective maturities. The common practice is to obtain serial bond prices by averages, which is

always inaccurate. The total costs of the bonds of all maturities are secured by the addition of the separate maturities.

With the cost basis established, the schedule will be constructed, as before, to the first maturity. With the maturity of each serial payment, the par value of this is added to the amount of the amortization for that interest payment and subtracted from the investment value of the previous date for a premium bond and added to a discount bond. This gives the investment value of the bond for the next period.¹

¹The use of even months as divisor in determining the amount of the interest will always work to a slight disadvantage to the buyer.

CHAPTER X

MARKET INFLUENCES ON SECURITY PRICES

It is very difficult to draw the line of demarcation between investment and speculation when one analyzes the influence of market conditions on security prices. Buying and selling for profit upon the basis of an enhanced price of the principle is admittedly speculation. But can one say, then, that purchasing a security in an advantageous market and thus increasing the net yield, is not a part of investment? And can the investor be unmindful of the depreciation of a security from the premium at which it is purchased before maturity? While an investment means a permanent holding, necessity may force liquidation before maturity, in which case a price fluctuation, affecting the principal, is of paramount importance. Certainly, no one can deny the necessity of examining those factors, external to the security, which affect the stability of the principal.¹ To avoid a consideration of the relation of the financial markets to investment securities in a study of investments would be very much like the miller's disregarding the price of wheat.

There are too many influences at work for one to be able to determine always and absolutely what will be the trend of security prices. There are, however, certain big factors and relationships which are based on fundamental causes and which do indicate tendencies in the market affecting the long time fluctuations in market price (not the short speculative fluctuations). The word "tendencies" is used advisedly, as the incompleteness of the data relative to security prices warrants only

¹*Rapports sur les Indices des Crises économiques et sur Mesures financiers peopre à atténuer les Chômages resultant de Crises* (French Government Report, 1911, p. 78). See also Warren M. Pearsons, Construction of a Business Barometer Based Upon Annual Data, *Amer. Econ. Rev.*, vol. vi, Dec., 1916, pp. 739-769. Also same author's *Studies in Harvard Bureau Economic Statistics*, vol. i, 1919.

an assumption of tendencies. This is borne out by the following:

First, the only considerable complete data on security prices are of the prices of securities listed on the stock exchange, though such limited observations as have been made of unlisted security prices indicate the same general tendency. Secondly, bonds and notes of varying maturities, other things being equal, are not influenced to the same degree by the same market conditions. Short termed maturities are less susceptible to change in price than long termed securities. Thirdly, as stated by Wesley Mitchell in his "Business Cycles," "the rising price levels have shown a narrower margin between higher and lower yields in the past twenty years." Fourthly, the improved physical condition of properties has in itself so strengthened the credit of many corporations that historical comparisons are often impractical.¹ Fifthly, the factors influencing market prices never repeat themselves in exactly the same manner. The resultant then must, necessarily, show some variations. As all factors making up the market influences are constantly fluctuating, and each new combination gives a slightly different result, it is only safe, as stated in the beginning, to stipulate that certain tendencies exist. This does not, however, deny the existence of fundamental laws which influence security prices. For illustration, Professor Irving Fisher states that "no one ever has seen a complete demonstration of Newton's law of falling bodies." Neither has any one seen the law operate from time to time in exactly the same manner. The most costly and most frequent error made, as all students of market conditions fully realize, is that of drawing deductions upon insufficient data. Even to determine tendencies, a complete composite view of all data must be had. To quote Wesley Mitchell again, "The uncertainty attending present forecasts of business conditions arises chiefly from the imperfections of our knowledge concern-

¹Wesley Mitchell, *Business Cycles* (University of California Press, 1913), pp. 156-157. The reader will also find instructive the conclusions of this same author on general prices as related to the war in the "History of Prices During the War" (Summary), War Industries Board (Bulletin No. 1, Washington Government Printing Office, 1919, pp. 91-95).

ing these conditions in the immediate past and in the present. For since business cycles result from processes of cumulative change, the main factors in shaping tomorrow are the factors at work yesterday and today."¹

The unwarranted disrepute into which the forecasting of business conditions has fallen is due to the ignorant or wilful abuse that has too often been made of facts. Too many men, discovering a parallel between two sets of facts or noticing that one condition follows another, immediately conclude that a relation of cause and effect exists.² There may be no relationship between the two facts, the parallelism being a mere chance coincidence. Too frequently, it is to be feared, ignorance of simple statistical facts has led to prediction of impossible happenings.

Interest³ and Discount Rates.—The call loan rate⁴ has been termed "the safety valve" of the money market. At the same time that "call loans are the storehouse for the surplus money of the country," the immediate demand that can be made upon call loans makes the call loan rate the most sensitive of all interest rates to market fluctuations. In a forced liquidation of the market, the immediate burden of disbursement falls upon call money, with an equally responsive recovery and lowering of the rate when liquidation has been completed. "Thus by their reliance on stock exchange quotations as measuring the true value of the stock collateral which they hold, the banks build up the very exchange prices on which they rely to lend, and again, when they are in strained positions, they themselves

¹Ibid. The student will also find Melvin T. Copeland's, *Statistical Indices of Business Conditions* of value, pp. 98-132. (In *Business Statistics*, Harvard University Press, 1917.) Also see Roger W. Babson, *Business Barometers Anticipating Business Conditions* (Tenth edition, Wellesley Hills, Mass., 1917), chapter iv. J. H. Brookmire, *Methods of Forecasting Based on Fundamental Statistics* (*American Economic Review*, volume iii, No. 1, March, 1913, pp. 43-59).

²See Horace Secrist, *An Introduction to Statistical Methods* (N. Y., Macmillan & Co., 1917, pp. 425-431), for illustrations.

³For a theoretical discussion of the interest rate and its influences, see Irving Fisher's, *The Rate of Interest* (N. Y., Macmillan & Co., 1907).

⁴The call loan referred to above is the call loan used in the financial money markets—*i. e.*, it is "the form of a note or promise to pay, the borrower having the right to pay off the loan at any time—presumably not the same day it is made—and likewise the lender the right to demand payment." In practice the lending banker practically always is the one who calls the loan.

destroy those very prices. Here then, is one of the main causes of the priority of our stock market declines to commercial troubles; the banking strain seeks relief by throwing off stock market burden by liquidation, and in so doing crumbles the stock exchange quotations. Only a minor part of the matter can be granted to those traders who, foreseeing and accompanying with their commitments the genuine sales brought about by the banks' demands, sell stock short to accelerate the decline."

Discounts always follow closely in the wake of the call loan recovery, and a business revival does not proceed very far before discount rates advance, though the complete recovery is usually slower than the recuperation of general prices.

Interest rates on long time securities recover more slowly than discount rates. In either case, however, relatively cheap money rates generally exist prior to any extensive upward tendency of security prices, or general prosperity. This variation between the discount and the interest rates is only a logical development of a general business recovery. Recovery first occurs in the current business which is undertaken without the aid of additional financing, but which necessitates, before it has proceeded far, the assistance of the commercial bankers in discounting its current paper. The bankers with the accumulation of reserves, after the complete liquidation of the market, can usually meet the curbed commercial and industrial demands for current loans without materially weakening their condition.

A sudden upward movement of interest rates occurs just before a severe strain in the market, because of the sharp demand for credit and at the same time an increased demand for the payment of loans. And not until this strain has been relieved by complete liquidation can permanently lower rates normally be expected. Where radical exceptions occur, in either a rising or falling rate, the cause can be attributed to some other unusual condition. For example, there was a great difference of interest rates before the panics of 1903 and 1907, the rate in the year preceding 1907 being almost double the rates in 1902 and 1903. Prior to the collapse of 1903, it was very easy for us to obtain money in Europe, but in 1907 Europe had difficulty

in meeting its own demands. However, it is self-evident that no very important and long-continued rise can occur in a market until relatively cheap interest rates have been firmly established. It is only when the market gathers the momentum of renewed stability, under the expansion of business, that investment bankers are warranted in guaranteeing the advancement of funds for fixed investments. As expressed in the market term, "money must be cheap" before the market will long continue to absorb securities.

The temporary fluctuations of discount and collateral loan rates, which may be of wide range, must not be confused with the more permanent movements of the financial markets. The sensitiveness of discount and collateral loan rates to temporary influences makes it difficult to determine from their changes whether a speculative and temporary fluctuation or a permanent movement exists in security prices. For this reason long time rates are more accurate indicators of the permanent market trends.

Every investor is cognizant of the rising price level which has forced a corresponding demand for a larger investment yield. Railroads for several years following the panic of 1907 participated in the "waiting policy" by issuing short term notes with the hope that interest rates would decline. But the great expansion of industrials and especially public utilities, together with the increasing municipal issues, forced a partial readjustment of interest rates to the basis of the rising price level. With the persistency with which prices have been rising since 1896, it would seem rather futile to expect longer the low interest rates that were so common in high grade securities of the early nineties. On the contrary, increased pressure on prices growing out of the European War, temporarily at least, has tended to force them to higher levels.

Several authorities have, however, raised the issue as to whether the low rates on long-time securities are not merely nominal.¹ E. W. Kemmerer in his discussion of the "War and Interest Rates" states:

¹See *Proceedings of the American Bankers Association* for 1918 and the *Proceedings of the American Economic Association* for 1918. Also see Irving Fisher's, the Equation of Exchange for 1913 to 1918. *The American Economic Review*, vol. ix, No. 2 (June, 1919), pp. 407-411.

"We bought our low interest rates at the price of very high prices; we kept rates down by pushing price levels up. The government was enabled to borrow at low interest rates partly also by policies which led to tremendous inflation. . . . Both the government and the public paid lower nominal rates of interest than they otherwise would have paid, by reason of this situation; but it does not follow that they will pay lower amounts of interest, for the very policies that kept interest rates down pushed prices up and the borrower was accordingly compelled to pay higher prices and thereby borrow larger sums of money than he otherwise would to buy the same supply of goods. . . . If the next few years witness a gradual deflation of our currency and credit—and the purchasing power of the dollar rises, the debtors will be required to pay their debts—principal and interest—in more valuable dollars than they borrowed. This agio in the value of the dollar they will repay over the value of the dollar they borrowed will be part of the interest rate, but they will not recognize it as such. It is likely to make the actual or purchasing power interest rates on long-time loans, floated during the war period very big ones."¹

While conditions involved in the above illustration are partially historical, the extremes represented in the relationships of this experience are much more easily seen, because of the very rapidity of their movements, than are the slower but similar changes during normal periods. The principal, however, is no different from what would be the slower operation of the same factors under peace conditions.

The experiences of 1920 in the relationship of interest rates to security prices have been instructive. With the policy of the Federal Reserve Board, after the signing of the armistice, of continuing the low rates until January, 1920, credit inflation continued. With the fall in prices which followed the raising of the rates a speculative rise in securities took place. The "market tipsters" immediately drew the conclusion that a long continued upward movement of security prices was imminent. The movement was merely a temporary speculative swing without a fundamental basis which would cause a long continued upward movement, and it again collapsed in April. The general market was still inflated, and no long continued swing, as

¹E. W. Kemmerer, *The War and Interest Rates*, *The American Economic Review* (Annual Proceedings), vol. ix, pp. 106-107.

already suggested can take place under these conditions, though a temporary speculative swing may. The recognition of this inflation and the changing relationship of interest rates and prices were further illustrated, especially by large investment buyers during the year (1920). Not until the market had sufficiently adjusted itself so that corporations could issue new bonds at higher rates, did these buyers make extensive purchases in the market.

Loans, Deposits and Reserves.—The influence of credit on security prices is more direct than that of any other factor in the market. But, to insure clarity in the discussions of the items determining the condition of credit, it must be borne in mind that increasing deposits do not necessarily mean an increase in cash. If it were possible to represent separately on a bank statement the ratio of the loans to credit deposits and the ratio of loans to cash deposits in the bank, undoubtedly many of the common mistakes of interpreting these items would not be made. When a loan is made, that amount is seldom paid in cash, but the account of the borrower is credited with this amount, which then becomes a deposit in the bank; *i. e.*, the whole transaction is a credit operation. The only legal limitation placed upon this operation is the requirement that the bank maintain a certain ratio of reserve to deposits.

The amount of loans and discounts indicates the demand for credit, and deposits show the supply of credit; and deposits are limited by the amount of the reserve required by the banks. The advantage in using the ratio of loans to deposits to express the condition of credit is that the same relation is expressed between demand and supply, whether it is the result of contracting of cash deposits, as in 1893, or the over-expansion of loans, as in 1903, 1907, or 1918-1921. The fact that the total volume of loans to deposits may change does not destroy the purpose of the ratio.

If the ratio of specie to deposits is increasing and loans are growing correspondingly, it is indicative of a healthy condition of the banks. If the ratio of loans and discounts to deposit is high and the ratio of specie to deposits is small or rapidly decreasing, they usually indicate an inflated condition of the

banks. This will necessitate either a check in business or a liquidation of the market. If the ratio of loans and discounts to deposits is low, the ratio of reserves to deposits is large they indicate both that the market has been liquidated and that banking conditions are in a strong position.

Now, how do these conditions specifically affect bond prices? If an average index price that has been compiled for high class bonds be compared with the ratio of loans to deposits, the comparison normally will show that when the former is low, the latter ratio will be high, and vice versa. And the more stable the security of the principal is, the more closely does it respond to the fluctuations of credit, though there are conditions as indicated under other topics of this chapter when this relationship will be modified. The same holds true in the financing of the new issues. If the ratio of loans to deposits is low and the percentage of reserves to deposits high, normally credit is cheap and it is profitable to buy bonds with borrowed funds. In a reverse credit market, as little or no profit would be made in buying bonds with borrowed money, the price of bonds would tend to fall in order to correct, to a measure, the ratio between the net yield of the bonds and market rate of interest.

If the surplus is large, a considerable demand can be made on its resources without seriously affecting the bank's entrenchments, as such a demand would if the reserve were low. Too small a reserve or a deficit indicates a strained condition of the bank, or an overly optimistic market which must soon readjust itself. Not only can no new loans be made, but it forces the immediate liquidation of securities carried on collateral. Viewed in another way, it is the effect on the market of the supply and price of money.

Any comparison of bank reserves of the present with any period prior to 1914 must allow for the decrease in the required legal reserve. Prior to the adoption of the Federal Reserve Act in 1913, surplus reserve, the amount of reserve carried above the legal requirements, gave an immediate check on the strength of the bank. The amount of the surplus reserve also indicated whether a long term market movement was possible. But the surplus reserve has become a criterion of questionable value

under the Federal reserve system, because of the ease with which reserves may be created through rediscounting at Federal Reserve Banks (and with the great variations in the government's calls on its balances at banks, thereby reducing the banks Federal reserve balances).

A comparison of bank reserves of the present with any period prior to 1914 must allow for the decrease in the legal reserve now required.¹ Under the amendment of June 21, 1917, to the Federal Reserve Act the full amount of this legal reserve of the member banks must be deposited with the Federal Reserve Banks of their respective districts. Thus the gold reserves are retained within their respective districts and are not tied up in the larger money markets, where they were formerly primarily used in loans for speculation. This should eventually give greater stabilization to the investment market, if the spirit of the law is followed. While it is quite clear that the change from a decentralized to a centralized system should

¹"Under the old national banking system, as we have seen, for every dollar in actual cash added to reserves the banks could, on the average, increase deposits and hence loans and discounts eight dollars. Since, however, a cash reserve of, say, 12 per cent appeared as a legal reserve of 20 per cent (because of interbank reserve deposits, one dollar cash counted, on the average, as \$1.60 or \$1.70 of legal reserve), a dollar of excess legal reserve could be used by national banks in general as the basis for expansion of five dollars in loans and discounts. Now, under the Federal Reserve system . . . if a bank in New York, Chicago, or St. Louis creates a credit at the Federal Reserve Bank, that credit would be the basis for loans for between seven and eight times the amount of the credit. If a bank in a reserve city creates such a credit it has a basis for granting ten times that amount of credit to its customers, and if a country bank creates such a credit it has a basis for granting credits to its customers for about fourteen times that amount." Warran N. Persons, *The Review of Economics and Statistics, Harvard University Committee on Economic Research*, January, 1920, vol. ii, p. 22.

Mr. H. L. Reed makes the amounts \$13 and \$40 respectively, but he does not include till money in these amounts. H. L. Reed, *Credit Expansion under the Federal Reserve, American Economic Review*, vol. viii, June, 1918, p. 274.

Edwin W. Kemmerer illustrates this expansion as follows: Assuming each bank below has \$1,200,000 demand deposits, \$300,000 of time deposits and \$100,000 of national bank notes outstanding:

<i>Bank in</i>	<i>Per Cent</i>	<i>Amount</i>	<i>Per Cent</i>	<i>Amount</i>
Central Reserve City.....	25	\$375,000.00	4.18	\$62,750
Reserve City	15.6	234,375.00	3.34	50,150
Country	7.4	111,093.75	2.50	37,550

E. W. Kemmerer, *High Prices and Inflation* (Princeton University Press, 1920), p. 16.

make for a more effective use of each dollar in the reserve, there may be danger of inflation of credit in too great a reduction of reserve requirements. The experience of the banks under the old act clearly indicated that the banks normally kept their reserves close to the minimum legal requirement, and the experience under the Federal Reserve requirements thus far indicates that the minimum requirement will probably be closely followed.

The depositing of all legal reserves of member banks in the Federal Reserve Bank of their district should assist in a more effective separation of the purely speculative and the strictly commercial banking credit. That is the gold which normally flowed in large amounts at certain periods and seasons to the New York market is kept within the district. Much of the effectiveness of this use of the gold fund, needless to say, will depend upon the administration of it. Any discussion of bank loans, deposits and reserves must include at least a mention of inflation, which was probably the most frequently mentioned financial term during the period of 1917-1920. For twenty years prior to this and quite apart from any war influences, the expansion of currency and "circulating credit" was in excess of the increase of business. At the outbreak of the War in 1914 this increase was still in progress. According to Irving Fisher's approximations, the volume of business increased 138 per cent and the volume of gold over 200 per cent. While gold production was slowed up by war conditions, the even greater expansion in "circulating credit" more than offset the decrease in the reduction of gold production.

Many have thought inflation could arise only where an excess of paper money was issued, as during the Civil War. The last war experience clearly demonstrated that too much gold as well as too much circulating credit can as effectively inflate prices as too much paper money. The volume of gold in the United States imported from August 1, 1914, through the war period was over one thousand million dollars. A more important factor was the changes in the Federal banking system,¹ which

¹See the Federal Reserve Act of 1913 as amended August 15, 1914, and June 21, 1917.

reduced the reserve requirements thus allowing a much greater credit expansion.¹ This act reduced reserve requirements to less than one-fifth the requirements before 1914.² Another contributory force in the expansion and greater use of gold at this time was the issuance of Federal Reserve notes which largely replaced the gold certificates and only required a 40 per cent gold reserve. The establishment of the gold settlement fund and the clearing and collection system also gave a more effective use to money in circulation.

While these changes in the banking system have operated under financial pressure of the War and the adjustment period following, the potential possibilities of a much larger circulating credit than under the old system exist. A long experience in the operation of the system, however, is necessary to gauge its full influence on the money and security markets.

Another agency which should have some influence upon the credit market for securities, particularly the speculative market, is the stock clearing corporation. As this organization was only put into operation May 1, 1920, it is also not yet possible to judge its importance or influence on the speculative security market. Without question a number of additional important changes will be made in the next few years in the methods of advancing loans for speculative purposes.

In conclusion, let the fact be emphasized concerning bank funds that before any real upward trend in the market (bull market) can be sustained, bank statements must show large available funds to carry on the bull campaign. This, together with lowering interest rates, usually means that an increased demand for investment securities will take place. The unwarranted depletion of funds has the opposite effect of creating an overstrained market. This result is brought about by over-zealous banks in their attempts to reap large profits.

Bank Clearings.—Formerly the clearings of banks, exclusive of those of New York, were a more accurate indicator of general

¹E. W. Kemmerer, *Causes and Progress of Inflation, Proceedings of the Academy of Political Science*, volume ix (June, 1920), p. 9. (The whole of this issue of the Proceedings, which is devoted to Inflation and High Prices, is instructive.)

²Ibid.

business activity than were the clearings which included those of New York banks, as speculation in securities in the New York market forms a larger percentage of the business transactions than in any other market in the country. Large fluctuations may exist in a speculative market, while no great activity or change is taking place in general business activities. An acceptance of New York clearings, therefore, was not a very accurate barometer of the general financial market, especially if the New York market was in the midst of a very speculative market. The establishment of the Federal Reserve system of clearings and collections, and the increasing diversion of checks from regular clearing channels through the Federal Reserve clearing system, have rendered outside clearings of dubious value as a criterion in recent years. The bank debits issued currently in the Federal Reserve Bulletin are now far more suggestive.

As the London clearings are reported every two weeks, and not daily as in New York, London clearings reflect fairly closely general business conditions, while they reflect less accurately the condition of the immediate speculative market. In the other large countries of Europe, because of the more limited use of the check system, bank clearings represent such a small percentage of the total transactions that they can be given little weight.

If the total amount of clearings has increased in one period over a previous one, accompanying an upward trend of the general price level, the clearings of the later date should be discounted to the amount of the increase in general prices. It is not an uncommon practice among users of mechanical devices in constructing their graphs for illustrating the growth of business, not to make any allowance for the change in the price level.

Import and Export of Gold.—When specie is being exported from a country, general prices normally tend to fall, and exports of goods are eventually stimulated. Vice versa, if specie is being imported, general prices normally tend to rise and imports increase. An automatic regulator of this flow of gold is the discount rate. As the movement develops in either direc-

tion above or below the normal, the discount rate tends to rise or fall and check the export or import of gold.

To determine the movement of gold in the trade relations of one country with another, it is necessary to credit it not only with the export of commodities, but with interest on loans, ocean freight charges, commissions, loans from foreign countries, the amount brought by immigrants, letters of credit and capital invested and debited.¹ Gold will flow in either direction to an amount necessary to adjust any additional liabilities. Hence, it is not an adjustment between exports and imports, but between debit and credit balances. It is thus possible for a country to have an excess of either visible exports or imports, and the credit or liability may be adjusted through one of the other sources.

A large part of these balances between the United States and Europe, in the past, has been made by the movements of securities between the two markets. These settlements are made in the same way as in the local markets: by the re-sale of securities outstanding, or by the sale of new issues. In the former instances, international balances are not infrequently adjusted by the sending of securities instead of specie; consequently securities which have a wide distribution abroad will be the first to reflect any large changes in exchange rates. If, for example, large imports were being made and interest and discount rates were high, it would be profitable to send securities abroad, or vice versa. With the large demand for capital in the United States, the sale of new securities has always furnished a very large balance in the settlement of international balances of trade. And to that extent they have affected the rates of foreign exchange, which in turn affect the local trade. The closer this relationship is in any particular market, the more quickly it will, of course, react. Japan, which was building up a large balance against us in 1916, forced a decided change in the

¹C. K. Hobson, *The Export of Capital* (The Macmillan Co., N. Y., 1914), chap. vii (the student will find the reading of the whole of this volume instructive). See also the even more extensive study of Charles Bullock, John H. Williams, and Rufus S. Tucker, *The Balance of Trade of the United States, The Review of Economic Statistics and Supplements*, vol. i, Harvard University Committee on Economic Research (1919), pp. 215-266.

exchange rate against the United States in the summer of that year. Even had the German peace rumors of 1916 not appeared, this changing condition would have eventually forced a change in the stock market.

At times, a faulty monetary system, a lack of confidence in the securities of a country, or a desire to increase gold holdings, quite apart from the normal market influences, may destroy the equilibrium of these normal operations in financial conditions. From 1890 to 1896 the distrust abroad of the security of our gold standard caused a large amount of our securities held there to be thrown on the New York market with a consequent increase of the gold outflow. A continued high level of exchange rates, which cannot be justified by the normal factors in exchange, generally would indicate a large sale of European holdings of American securities. For example, the high exchange rate in Europe against Germany for several months prior to the declaration of war in 1914 was chiefly caused by Germany's efforts to increase its gold supply in preparation for the war that seemed imminent, while the New York rate was considerably aggravated by the concealed selling of European holdings, which greatly depressed the price of securities.

On the immediate outbreak of the War, the United States bankers were more than ever embarrassed by the demand of Europe for settlement in gold. The common practice of bankers in the United States is to make large loans in the spring and summer seasons, and then to make payment with the cotton and cereal bills in the fall. With the declaration of war, shipping was paralyzed, and the United States bankers were forced to make shipment in gold. Moreover, the Allied bankers were insisting on payment in gold. By the middle of November, 1915, sterling exchange was about normal, but conditions were rapidly developing that soon changed all this. Before the end of 1914, shipping conditions were much changed, and it was realized that the Germans could only succeed to a limited extent in demolishing shipping; the English moratorium was eased up, and unparalleled orders for goods, clothing, and war supplies were placed in this country. The whole energy of both England and France was devoted to war production and

they had few goods to exchange for the goods purchased. They had only three important methods by which they could pay: (1) by the shipment of gold, to which there was a very definite limit; (2) by the resale of American securities, which at first was over-estimated; and (3) by the procuring of credit through securing loans in the United States.

In making these settlements, English bankers desired two things most: (1) the maintaining of a high price for American securities, which they desired to sell, and (2) a low interest rate for the loans they desired to float. So what at first seemed to the average American in the early years of the War unfortunate for Great Britain was to its advantage. These conditions were affected by the shipment of large quantities of gold. The same advantage obtained for England in keeping the American securities, which were mobilized and used as collateral for loans. These large shipments of gold, together with the expansion of credit under our Federal Reserve system, just entering into operation at this time, established low interest and discount rates, and a strong security market. The disadvantage was eventual inflation. A close study of the gold shipments of England during the entire war period also indicates that there was no hesitation when necessity arose for the shipment of gold. Financial interests of the United States saw the danger existing to both the United States and the Allies in the continued acceptance of gold, and as a result greater effort was made both in the purchase of American securities and the extension of loans.

This chapter in the history of gold movements is without parallel; yet the movement was not so entirely new and unusual as has sometimes been stated. The underlying causes forcing these war gold movements did not differ from the pre-war gold movements except that the former was made on an enormous scale; and their magnitude alone made them unusual in their effect on the security market.

The problem in the United States during the first years of the War was not how to avoid tight money, but how to keep funds of the bank loaned at a profitable rate, and at the same time not to allow too great a stimulation to the speculative market. By the early part of the summer of 1915, the competi-

tion among banks for the lending of their funds had become very keen. But by the end of 1915, the large expansion of business and the demand for funds from abroad began to absorb this large surplus, though the profits from this increase in business made more funds available.

Miscellaneous Factors.—Imports¹ show the general trend of existing trade during periods of prosperity; but during periods of depression they normally fall off at more than a corresponding ratio. In the use of statistics for comparative purposes in this connection the influence of trade restriction and regulation must not be omitted. Export statistics of the United States are very much less reliable in indicating the situation of our own market, because of the inadequate methods used for collecting these statistics; also the preponderance of our exports are raw products, which are not as good a criterion of the financial market as the exports of manufactured products would be. Conditions abroad, which also, at times, dominate exports, may not always be very accurate indicators of our own financial market. Immigration² figures, while important to individual corporations, have little value in pre-indicating market trends, as they respond after changing conditions are well under way. As economic, political, and social conditions in foreign countries (which may have little or no effect on the conditions in the United States) may stimulate or retard the flow of migration, their use for indicating market conditions is seriously limited.

Railroad gross earnings,³ and vessel tonnage⁴ cleared in United States ports, like bank clearings, indicate the present state of business conditions and cannot be used as an index of the market's future trend, for gross earnings continue to increase during the most serious stage of security liquidation. The tardiness in the issuance of reports will frequently cause a considerable variation in the actual totals of earnings reported,

¹Export and import statistics can be found in the *Monthly Summary of Commerce and Finance*, also in the *Annual Statistical Abstract of the Federal Government*.

²Ibid.

³See the special monthly supplement issued by the *Commercial and Financial Chronicle* on railroad earnings.

⁴*Monthly Summary of Commerce and Finance*, and *Commerce and Navigation of the U. S.*

as a varying number of railroads are included from month to month. This, however, can be corrected by using the same group of railroads, though the very reports wanted may be missing. The number of idle cars,¹ the amount of construction work, the production of pig iron, steel and iron,² coal,³ copper,⁴ building material,⁵ commodity,⁶ prices,⁷ and other basic commodities, fall into the same classification. While they are all invaluable indices of the present market, and as a whole indicate the possible duration and permanency of any market swing, they cannot be relied upon as future indicators of the trend in market prices. Pig iron, steel, and iron are the most valuable indicators of this group. As the orders for iron and steel are booked some months in advance, the future conditions in the industry normally can be ascertained sooner than in other industries; consequently, they reflect the present status a great deal more accurately than any other single commodity.

As the United States for years has been an agricultural exporting nation, a large crop⁸ has always had an immediate

¹*Monthly Reports of the American Railway Association* (Statement of Freight Car Balance and Performance. Published semi-monthly from Jan., 1908, to Nov., 1914, Feb. 1, 1915, to date—monthly.)

²*Iron Age*, published weekly, *Statistical Report of the American Iron and Steel Association*, *American Metal Market*, and *Daily Iron and Steel Report*, etc.

³See current issues of the *Coal Age*.

⁴See current issues of *Engineering and Mining Journal*.

⁵*New York Journal of Commerce and Commercial Bulletin* (Daily). *Bradstreet's*, *Dun's*, *New York Journal of Commerce*, *Labor Bureau Bulletins*, etc.

⁶See *Bradstreet's*, also *Babson's Statistical Desk Chart*, which is an excellent and convenient reference for much of the statistical material in this chapter. This Desk Chart, which is a mere tabulation of these figures, must not be confused with the Market Letters of this Organization. The current index series of the *Federal Reserve Bulletin* and of the Federal Reserve Bank of New York also will be of value. E. W. Kemmerer's index in *High Prices and Inflation* (1920) is of especial value to the student for the period immediately following the War. The Harvard Bureau of Statistics is gathering a fund of material that is probably the most thoroughgoing yet attempted.

⁷*New York Journal of Commerce and Commercial Bulletin* (Daily).

⁸*Bradstreet's Dun's New York Journal of Commerce*, *Labor Bureau*

⁹Publication of the Bureau of Crop Estimates (Department of Agriculture of the United States); see Circular 17 of this Bureau on Government Crop Reports; *Their Value, Scope and Preparation*. This circular gives a good explanation of the operations of this Bureau.

See also Bruce Mudgett in *Business Statistics* (1917), Ibid.

Annals of the American Academy of Political and Social Science, vol. xxxviii, No. 2, pp. 104-125.

stimulating effect, and a crop shortage a reactionary effect on general business conditions. The corresponding change in the market prices of raw products, especially wheat, corn and cotton, will have an important and immediate effect on general business conditions. But despite the dependence of the United States upon crops, they have never been the determining cause of a long swing in the market, and have no permanent effect on the long swings of security prices, except that the permanent increase in production acreage does increase wealth and income, which in turn, increases purchasing power. Large crops, and crop shortage of a particular year, have a more immediate effect upon the speculative market. The direct cause of the long swings in the security market, however, is the status of credit. During the panic of 1893, crop droughts aggravated the severity of the gold panic, but in the panics of 1903 and 1907, very large crops, instead of alleviating conditions, increased the difficulty because they increased the demand for money for the movement of these crops. In the autumn of 1912, the large crops were the cause of the temporary but not very great recovery in general business conditions, in a period of four years of business stagnation.

CHAPTER XI

MARKET INFLUENCES ON SECURITY PRICES

(Continued)

*Seasonal Variation.*¹—The former inelasticity of the United States currency system, which has so frequently been criticised, forced a recurring seasonal fluctuation in the demand for money, hence a corresponding change in prices. While the seasonal fluctuations vary with the different sections of the country, the fluctuations in the New York money market are the most essential ones to study in relation to investments. However, with the ultimate readjustments that will probably take place under the Federal Reserve System, the seasonal difficulties ought to be greatly reduced.

The best seasonal indicators of the New York money market are those items which are most responsive to quick changes, namely, call loan rates, very short time loan rates, and the ratios of reserves to deposits. Time loans and bank clearings, according to Professor E. W. Kemmerer, while less susceptible to minor influences, mark more accurately the broad swings of the market, but they are unsafe indicators as to the beginning and ending of the seasonal swings. The reader should always be careful in his study of the items just stated, not to confuse their seasonal movements with the movements primarily based on the contraction and expansion of credit over a long period. The tendency in the decrease or increase of interest rates and ratios of loans to deposits and of reserves to deposits in the long-period movements, can usually be anticipated, but they are

¹All the subject-matter of this section has been summarized from the following report: E. W. Kemmerer—Variation in the Demand for Money, *National Monetary Commission*, 61st Congress, 2nd Session, 1911. See also an article in the *American Economic Review*, volume i, March, 1911, pp. 33-49, by the same author.

not regular in occurrence; their seasonal movements, on the other hand, are fairly constant in repetition, but do not anticipate coming changes of an enduring character in the market. However, if over-expanded credit has accumulated over a "long-period swing," and exists during the autumnal seasonal swing, the strain is greatly intensified.

As further pointed out in Kemmerer's Congressional report in discussing the seasonal swing of the calendar year, there is a decided easing of the money market in January, which extends into February, usually making a "cheap money" market at the end of January and the beginning of February. The reasons for this first movement are: the subsidence of crop moving demand and the consequent return of cash to New York, the relatively small amount of freight traffic and the large amount of exports in January. The second seasonal swing usually begins somewhere between the middle and the last of February and extends into April. This second upward movement can be chiefly attributed to the demand for cash for spring planting, the renewed building activity, the payments of obligations and interest and a minor movement of cash payments to New England manufacturers. The third seasonal swing extends from the close of this former period to the middle of June or early July and is due to the influence of foreign trade, the decline in money rates and the movement of money to New York and the discount in trading made in anticipation of the fall demands. The fourth movement, marked by the first crop movements, is anticipated by an upward swing of call rates and a lowering of bank reserves and an increase of loans to deposits. This period proceeds into a fifth movement which is largely a continuation of the fourth, but with a more decided upward trend about October first, which continues well toward the end of the year. The chief cause of this last movement is the demand for cash to move the crops and is sustained by the trade activity of the holidays. . . .

"The seasonal effect on bond prices does not cause them to move consistently, or regularly. Also, individual prices may not fluctuate very much, but collectively for the year these fluctuations extend into millions. Bond prices tend to increase

in January under the stimulus of an easy money market and to decline quite steadily till the climax of the second swing. With the beginning of the second weak seasonal market, bond prices normally rise to their highest point in early summer. From the first of June until the first of September, bond prices normally take their first pronounced downward move and continue even more steadily until the middle of November, when they tend to move upward following an unsteady advance during December."¹

*The Business Cycle.*²—Though a detailed discussion is not possible in this work, it is essential that the existence of recurring rhythmic changes in the market and their effects on security prices be at least suggested, and the effects summarized.

The same difficulties are confronted in determining the causes of business cycles, as in discovering the causes which determine the tendency of general economic movements. Again, as Wesley C. Mitchell says of them, "the deep-seated difficulty in framing such a theory (*i. e.*, a theory of crises) arises from the fact that while business cycles recur decade after decade, each new cycle presents points of novelty. Business history repeats itself, but always with a difference. This is precisely what is implied by saying that the process of economic activity with which business cycles occur is a process of cumulative change.

"It follows that a thoroughly adequate theory of business cycles applicable to all cases is unattainable. Even if one cycle could be fully accounted for, the account would necessarily be inaccurate with reference to cycles which were the outgrowth of earlier or of later conditions."³ For illustration, crises or

¹Ibid, pp. 217 and 223-224.

²W. C. Mitchell, *Business Cycles*. The contents of this section very closely follows the theory of the business cycle as stated by Mitchell.

Other useful references are: Henry Ludwell Moore, *Economic Cycles* (1914); O. M. W. Sprague, *History of Crises Under the National Banking System* (In National Monetary Series); G. H. Hull, *Industrial Depressions* (1911); T. E. Burton, *Financial Crises* (1907); E. D. Jones, *Economic Crises* (1900); J. Gardner, *The Investment Aspect of Financial Stringency* (*Financial Rev. of Rev.*, vol. ii, No. 99, Jan., 1914, pp. 18-27); O. M. W. Sprague, *The Crises of 1914 in the U. S.* (*American Economic Review*, vol. v, Sept., 1915, pp. 499-534.)

³Ibid.

panics are usually preceded by an over-expansion of credit and followed by a slump, but this does not prove that over-expansion of credit is the only cause or that it is an equally important factor in all panics.

The first results of an over-strained market are the liquidation of obligations and stocks of goods, an ultimate decrease in cost prices, a lowering of interest rates and of the ratios of loans to deposits, and an increase of the percentage of reserves to deposits. With the complete readjustment that results in lower prices and interest rates, hesitation is overcome, and one factor after another, which in the total makes for business activity, moves forward. While prices may not respond with the same rapidity all along the line, sooner or later they must respond to the general advance of prices. Where prices have advanced more rapidly than the general price level warrants, this movement may cause a reaction in certain industries, or even in all industries, as in 1909.

In the first stages of business recovery, discount and interest rates increase slowly, but with the firm establishment of the recovery, interest and discount rates tend steadily upward. Banks and capitalists, during the first months of recovery, desire only the safest channels for the disposal of their surplus funds, and consequently the demand for securities, is directed largely to high grade bonds. This demand very soon forces up the prices of these securities, and as long as this demand for investment bonds continues, the prices will continue to rise, thus proportionately cutting down the net yield, though the upward trend of bond prices may be severely checked by a glutting of the market with new issues or by rapidly rising interest rates. But with the continuing demands of expansion, conservatism relaxes and a reactionary influence develops against bond prices; *i. e.*, with the rising prices and consequent low yields, purchasers of securities demand a more profitable rate of return. Consequently, many capitalists buy in the more speculative lists. Under the stimulus of increasing prosperity, the less efficient enterpriser and the enterprisers already in business are induced to take greater risks. In time, cost of output increases, but prosperity reaches a comparatively high point before the cost

of equipment has made serious inroads on profits. This expansion of new enterprisers creates, in turn, an increased demand for more loans, and under the stimulus of this new impetus savings are brought out. With the rise in profits, the price of securities closely follows, the scale increasing at a relatively faster ratio as the speculative risk increases.

When this movement has reached its high tide, corporations tend to give up bond issues and resort to short termed notes and stocks, with the purpose of waiting for lower interest rates before making a long time bond issue. Where over-indulgence in this method of financing has been practiced, it greatly intensifies the general pressure in a strained market. And under the same stimulus new contracts are made which call for further expansion.

With the centralizations of gold reserves, the control of the discount rate by the Federal Reserve Board, and the elasticity possessed by the asset currency of the Federal banking system, these cycles should be greatly minimized.

Banks are the first to feel the pressure of the increased demand for short time loans, and it is in this demand that we have the first intimation of a coming stringency. When the demand for loans begins to exceed the supply of available bank funds, and the rates go up, the profits of corporations begin to decline with the increased costs. Under these circumstances corporations like public utilities and certain industrials which have a fixed charge for services or commodities, suffer under unequal competition—since their rates remain the same and their cost of operation remains the same. The only way in which corporations may offset this disadvantage is by a more than relatively permanent increase in gross returns.

Banks, under this same stimulus, expand their credit in order to take advantage of the high rates offered on commercial paper, but the continued pyramiding by weaker institutions soon forces the conservative banking institutions to reduce loans in order to build up their reserves. This action accelerates the cost of credit, with the result that the creditors who have taken large speculative risks are forced to offer unwarranted rates with the hope that they may save themselves. But the pressure

is too great and the weak fail, and with them the whole business structure is involved. Banks call their loans, depositors withdraw their funds, unprotected holdings are liquidated, and security holders sacrifice their securities to save what they can. Bad crops may accelerate the crisis, and thus hasten a panic, but of themselves they will not create a panic. Neither will good crops, on the other hand, stop a panic. They may temporarily check, but they cannot stop it.

*Fluctuations in Individual Security Prices.*¹—The increased net yield, which is the reward of the investor who has taken advantage of fluctuating markets in the last quarter of a century, has already been fully emphasized. These fluctuations can all be traced to a corresponding change in the money and credit market. But because of this sensitiveness of security prices to credit and the possible counter influence of other market factors, correspondingly greater care must be used before drawing conclusions.

Long time movements of the various classes of securities tend to move in fairly close accord, though the changes in these permanent movements will occur in the order of the character of the security and the breadth of its market.² Variations are

¹The most dependable quotations and lists of current security prices covering the longest period are those of the *Commercial and Financial Chronicle*, the *Financial Review*, and *Wall Street Journal*. There are a very considerable number of financial publications which now give reliable quotations, but they do not cover as long a period as the above-mentioned journals.

²Wesley C. Mitchell, *The Prices of American Stocks, 1890 to 1910*, *Journal of Political Economy*, vol. xviii, No. 7, July, 1910, pp. 513-525.

American Security Prices and Interest Rates, *Ibid*, vol. xxiv, No. 2, Feb., 1916, pp. 126-157.

Thos. Gibson, *Influences Affecting Security Prices and Values*, *Annals of American Academy of Political and Social Science*, vol. xxxv, No. 3, 1910, pp. 145-154.

See also the same author's *Cycles of Speculation* (1907).

Hartley Withers, *Stock and Shares* (1911), pp. 283-312.

G. C. Selden, *Trade Cycles and the Effort to Anticipate*, *Quarterly Journal of Economics*, vol. xvi, pp. 293-310.

Lawrence Chamberlain's, *Principles of Bond Investments* (1911), pp. 492-512.

Frederick D. Bond, *Stock Prices: Factors in Their Rise and Fall* (Moody's Magazine Book Dept., 1911).

J. P. Norton, *Statistical Studies in the New York Money Market* (1902).

Harvard Bureau of Statistics, *Current Monthly Publications on Market Indices*, Annual since January 1, 1919.

also likely to be more marked between bonds and stocks than between industrial and railroad stocks. Influences causing deviations from the normal trend are the most difficult to discover. They become so great at times that temporarily they become a major influence, but they are always sporadic and when their force is spent, the normal influences continue to operate. For illustration, the over-capitalization of industrials in the great organization period from 1896 to 1901 checked industrial security prices from rising to the same relative degree as railroad securities. The exact opposite was true during 1905 and 1906. Although railroad stocks did rise very markedly, their rise was not so great relatively as the increase in industrial stock prices, for during this period the anti-railroad legislation checked the advance that would normally have occurred in railroad security prices.

General bond prices, as already pointed out, are normally more susceptible, than other securities, to changes in interest rates. After a liquidated market, the banks are timid and buy heavily in bonds of the first rank, but as the market gradually gains strength, the banks turn to cheaper bonds. The demand for money under the continued upward swing of the market and the attendant business expansion, then increases, and the banks begin to liquidate their bonds to secure funds for the increased demand for loans on stocks at higher rates. Bond prices, after this point, suffer a reaction. If the decline of bond prices continues for any length of time, even with a persistent upward trend of industrial and railroad stock prices, it signifies an over-expansion of credit, which results in a forced liquidation.

Railroad securities, also, suffer a greater decline relatively than industrial securities, during a period of higher interest rates. This is true, whether the increase in rates arises from an overexpansion of credit or from the general upward trend of the price level. In an over-expanded credit market, with the large borrowings that a railroad is often forced to make, its securities usually suffer a considerable decline. Industrials are, on the average, not such large long time borrowers and, over long periods, can more easily readjust their cost to their rate of returns. Railroads, as well as all public utilities, will also

suffer the most with a decline of gross earnings. Fixed charges for these latter corporations are relatively larger than with industrials, and as a consequence operating costs increase at a faster rate than the rate of decline in gross earnings.

The reports of the fabulous war fortunes, and the glamour which has attended the "skyrocketing" of a few of the "war brides," require a word. Though this is primarily a problem of speculative securities, this movement did have a decided "market-wise" effect on investment securities. Like all great speculative booms, it moved beyond the limit of its support and suffered a collapse. The phenomenal rise occurred in the war industrials and ordinance stocks and did not apply to the whole market. Public utility stocks, especially railroad stocks, did profit during the first eighteen months of the War, but they soon lost this advantage because of the increased costs of material and labor. Excluding the so-called war stocks, the rise of prices is not out of proportion, as Mr. Huebner states, with other bull markets.¹

Rising and Falling Prices and Their Relation to Investment Yields.—There are two risks connected with securities, as Professor Fisher so clearly has pointed out in his "Purchasing Power of Money."² The first, peculiar to the internal weakness or strength of the individual corporation, furnishes the main theme of this text. The second is the effect which the changing value of the standard money may have on the value of the security. The influence of the latter is the more subtle and difficult to determine. To the casual observer, this influence has seemed so insignificant that it has too often been lightly considered.

The phenomena of rising prices since 1896, and especially the radical rise for the war period and after, have been so widely discussed that the various causes advanced for this rise are now well known, though difference of opinion still exists as to their relative importance. However, the pressure, on the

¹S. S. Huebner, the American Security Market During the War, *The Annals of the American Academy of Political and Social Science*, vol. lxvii (Nov., 1916), p. 104.

²Irving Fisher, *Purchasing Power of Money* (1913).

investor, in the decrease in the purchasing power of money is making itself considerably felt at the time this book is being written, by his demand for higher bond rates. Bonds of the strongest railroad systems which in the early nineties were selling on a $2\frac{1}{2}$ to a 3 per cent basis, are now selling on a net yield of from 5 to 6 per cent. British consols, which have no artificial market, as do United States 2s of 1930, have gradually been following the same downward trend since 1900. The fact that this price level readjustment has not been peculiar to the United States, but is a world phenomenon, is sufficient proof that it should not be overlooked by the investor.

Where securities are classified on the basis of returns, they are divided into two classes: those that have a fixed return and those that have a variable return. The first class includes bonds, mortgages, notes, and most preferred stocks; the second, participating bonds and common stock. Now, the interests of the holders of these two general classes of securities are diametrically opposed either in a general rise, or a general lowering of the prices. The bond holders of a corporation lose when general prices are rising and the stockholders gain, other things being equal. When prices are falling, the bondholders gain and the stockholders lose.

An illustration will best verify the latter statement. Let us assume that a corporation is capitalized at \$1,000,000 and that 50% of this capitalization is in the form of 5% bonds. Further, the gross sales are \$500,000 and all costs are 80% of gross sales, exclusive of interest charges. If the same interest charges should still exist because of a long term bond outstanding, what would common stock be earning if the general price of commodities advanced 40%? In the latter problem all costs on a 40% increase would rise from \$400,000 to \$560,000, and gross sales from \$500,000 to \$700,000. Deducting the constant interest charge of \$25,000, we would have net profits of \$75,000 and \$115,000 respectively. With this increase of 40% in the price of commodities, then, the rate of return to the stockholder increases from 15 per cent to 23 per cent, or expressed in purchasing power, the income yield of the capital stock has increased 53 per cent as against a 40 per cent increase on gen-

eral commodities. The annual income of the bondholders, on the other hand, has decreased in purchasing power from \$25,000 to \$15,000 at the end of the period, and the principal has decreased in purchasing power from \$500,000 to \$300,000. Assuming that this advance was evenly distributed at the rate of 2.5 per cent per annum, it would give a return of a little more than $\frac{1}{2}$ of 1 per cent per annum for the period at an equal rate. Assuming the process to be reversed, the bondholder would have a corresponding gain and the stockholder a loss.

What applies to bonds with their fixed rate of return, also applies to all other long tenure securities with a fixed rate of return. This is true of preferred stocks which have fixed dividends. Where the dividend rate is flexible, as on common stock, this handicap could be overcome by an increase of the dividend rate, provided earnings warranted. The solution of this problem for public utility companies is not so simple, however, for the regulations imposed by state commissions fix the rates that can be charged by the company, thus indirectly limiting the dividend rate. If, in addition to this fixed regulation, costs of operating are mounting very rapidly, as from 1914 to 1920 the public utility is caught between two millstones. While this situation was slowly developing prior to 1914 because of changing prices, peculiar and temporary conditions which existed with public utilities offset the effect of increasing costs. This offsetting cause existed in the faster rate of expansion in public utility companies (from 1895 to 1914) as compared to the slower increase in costs. At the same time new economies were made possible through the operation of larger organization made necessary to meet this increased demand. With the increased cost of labor and material immediately following the outbreak of the War, this former advantage was not only lost, but public utilities had difficulty in meeting their fixed charges.

If the credit of the corporation is to be maintained under increasing prices, not only must a sufficient increase in rates be allowed to permit the corporation to offset the immediate losses, but a sufficient increase must be allowed to return the higher net yield which will ultimately be demanded by the

investor. With public utilities which are artificially limited to what they may receive for their services, the pressure has been the most severe. And the situation is only intensified when additions, betterments, and extensions are needed, which will cost more than the original installations of the plant. To make it possible for these utilities to compete with industrials which can change their prices, the public utility commissions of the country must disregard the idea of fixed rates and adopt a policy which will adequately meet these changing needs. Where earnings are to be regulated, the assurance of a fair return on capital must be made to persuade investors to provide capital.

Where a corporation owns outside corporations which conduct business foreign to its own, the advantage in the increasing value of these properties will generally have a greater effect on the value of its stock. So many errors have been made in the comparison of security averages through neglecting to distinguish between the increase due to this latter influence, and the increase of value due wholly to the increase of the general price level, that one making a comparison of stock averages should be very cautious not to confuse them.

Lastly, as already intimated, the rate at which bonds may be issued at one date as compared to another, is determined by the existing rate of interest for each particular risk.¹ Now, if the value of the money standard changes—a change which means rising or falling prices—a corresponding change in the interest rate should take place if equalization between creditor and debtor is to be secured. But, even where the possibility of change of value resulting from a rising or falling price is known to exist, it is difficult to know how long and to what degree of intensity the appreciation or depreciation will extend. If the appreciation or depreciation of the money standard could be accurately foreseen, a similar change would be made in the rate of interest. For illustration, if the present purchaser of a bond knew that a bond issued on a 5 per cent basis would, through a change in the value of the standard, be reduced in

¹Irving Fisher, *The Rate of Interest* (1907), pp. 77-86.

purchasing power to a 4 per cent yield, he would refuse to purchase it at that rate and demand a price that would yield 5 per cent. That is, this knowledge would cause the investor to demand a rate that would closely correspond to these changes, and this demand would automatically force the issuing corporation to conform to the change.

CHAPTER XII

REGULATION OF THE ISSUANCE OF SECURITIES

Massachusetts and Texas enforced radical regulation of securities, for a number of years, without even a modified acceptance of their legislation by other states. It was not until New York and Wisconsin established their public utility commissions that the present day regulation received complete political sanction. In the initiation of similar legislation which quickly followed in a number of states, the commissions were given direct control over capitalization and security issues. This power was later included in the amendments to other statutes that had not granted it at the start. Simultaneously with this later extension of the authority of public utility commissions over security issues, there have developed the so-called "Blue Sky Laws" regulating the distribution of all corporate securities.¹ If the signs of the time are correctly read, regulation in some form will continue. While emphasis has been especially placed upon charges for service, future regulation will, for some time at least, give increasing importance to capitalization and the security issues representing this capitalization. With the broadening of these powers we also have the more need of carefully directing the development of future regulation.

The ideal aim of state regulation of securities should be the creation of a stable and sound market and the encouragement of the investment of capital. Protection to the investor

¹The laws regulating the investments of insurance companies, building and loan associations, savings banks, trustees, etc., are not included in this discussion, as these investments are regulated by separate and distinct laws of their own. To the student specializing in finance, a study of these laws is, however, of great value.

Regulation of Public Utilities and the relation of regulation to securities is also treated in chapter xiv. In this chapter is also considered the present Federal Law regulating railroads. See also chapter xix.

is an incident which grows out of this condition. To the company, it further means adequate funds, at lower rates and on easier terms, for the development and safe conduct of the business. Most of the legislation affecting security issues has largely developed as an incident to the regulation of services and rates. Consequently, principles which should directly govern security issues have been frequently confused with those relating to rates and services, whereas the two classes should be kept distinct. This legislation is also too recent in its origin, not to have a great many defects. Radical changes will still continue, as no precedents exist, and there will be many failures.

It should also be incidentally emphasized that regulation is discussed here in relation to investment, and not speculative interests.

As capital stock represents ownership, the greater risk, regulations have a far more important direct bearing upon the issues of capital stock than bonds. As the credit of a corporation, however, is directly affected by its total capitalization, a consideration of regulation is as important to prospective buyers of bonds as to buyers of stocks. Where regulation of bond issuances exists, the amount of the bonds issued is usually fixed at a given ratio to the assets or the capital stock of the corporation. Even where the statute does not indicate a ratio between the amount of the bonds issued and the value of the property, the majority of the commissions have fixed upon some such standard. The danger, of course, lies in too rigid an adoption of "thumb rule" ratios. The need of elasticity in the application of ratios is now realized by most commissions, so that the evils arising out of the early narrow application, whether applied to bonds or any other phase of capitalization, are less frequent. The more effectively, however, standardization can be accomplished, the more accurately may the risk be eliminated. Earnings of sufficient amount must be provided to allow the company to secure all reasonable requirements for its own maintenance, to give a reasonable service and to yield its owners a just return. If this is accomplished the credit of the company is enhanced and the bond becomes a more stable investment.

The three forms of control of security issues in the United States are: (1) by publicity; (2) by an authorized government agent or agents (either in the form of a special commission, or attached to some existing executive board); (3) by the certification by state officials of the validity of the issues made by the state's minor civil divisions. The so-called methods of publicity, the first of the methods of regulation, used in this country, are all of a semi-publicity character. The "Blue Sky Laws," though based upon publicity, represent only a partial acceptance of the English idea of what constitutes publicity. While the license required of dealers in securities is itself regulatory, it is only a means to an end of security publicity. The Interstate Commerce Commission reports required of railroads, and several of the state utility commission statutes are only modifications of the publicity principles, and strict publicity through state control cannot be said to exist in the United States, though a great many corporations practice it through their own volition as a matter of policy.

The development, under the second type of public regulation, has made an almost arbitrary distinction between the business which is or tends to be monopolistic and that which is competitive. The regulation of the former applies to railroads, street railways, gas companies, etc., and has become very considerable and is increasing. Where the risk is greater, as in the industrials, more limited regulation exists. As long as the risks are to continue, individual initiative must be left unrestricted to the extent of this risk, in order to stimulate new enterprise and encourage the continuation of old organizations. On the other hand, where these enterprises become monopolistic, they will continue to come under the jurisdiction of the law.

The third type of regulation, the certification¹ of the issues of the minor civil divisions by a state official, might be called a

¹Certification as used here must not be confused with the certification made by a trustee for a corporation. A corporation's certification does not carry with it a surety of payment beyond its ability to pay. Thomas Mulvey has written an interesting summary of this aspect of certification in the *American Economic Review*, vol. iv, pp. 588-601 (September, 1914).

guarantee of validity, rather than a form of regulation by the state. It is a responsibility assumed by a few states which could be copied with advantage by all of the commonwealths of the nation.

A study of indirect control and regulation of all securities by the state, though not under discussion here, would also be made with profit. For example, while the restriction of debt limitation in no way effects validity, as long as the statute is obeyed, it does attempt to maintain an ample margin of security behind the bond. To the same extent can all statutes effecting security issues be considered, partially at least, regulatory. We shall apply ourselves, however, strictly to what would be called direct regulation in certification, other considerations being left for subsequent treatment. Likewise, all the statutes regulating the organization and control of corporations are means which directly or indirectly give more or less protection to the investor. Regulation in its broader aspects also includes a study of the Sherman Act and Clayton Bill, etc.¹ The distinction is again drawn between what is direct control of a security issue and that which effects the safety of the corporation, *i. e.*, the internal strength of the corporation back of the security. This latter is the problem of the text matter of parts two and three of this book.

The direct regulation of security issues includes two distinct problems: (1) the treatment of issues already authorized or outstanding and their relation to property values, and (2) the regulation of new issues and their relation to property values and security issues already outstanding. In the first problem, the widely accepted idea of a relationship between capitalization and property values necessitates a recognition of valuation. This gives rise to the whole and still much disputed problem of how such a valuation should be made.² The necessity

¹See Discussion of Topic on Federal Regulation in this chapter.

²The several methods of valuation which aim at a "fair value" are laid down by the Supreme Court in its early leading case of *Smyth v. Ames* (169 U. S. 466). The court has, however, failed to formulate any definite principles either in this or later cases as to how fair value shall be determined, except to indicate that certain factors must be given consideration. With the limitation of accurate and incomplete data, and the newness of the problem, the courts have done well in not for-

of physical valuation in particular cases is beyond dispute. But it is extremely doubtful whether the wholesale valuation of all public utilities is warranted both, because of the expenses involved and the results attained.

After a physical valuation is made, serious injustice, apart from legal difficulties, may result in scaling down the securities if over-valuation exists; and, secondly, new issues needed for improvement may be debarred. The application of any valuation made must qualify itself to the extent of maintaining the credit of the corporation. This is imperative to the interest not only of the investor, but also of the public. The indirect loss arising out of a valuation which gives no recognition to the other factors is often even greater than the direct effects of pure physical valuation. The Supreme Court, in all of the leading cases that have come before it, has always given large importance to this, in its emphasis of all the factors which must be used in the determination of fair value. "Such a readjustment," states the Hadley Federal Railroad Securities Commission, "would become archaic almost from the outset, because an adjustment of securities based upon the values of today might be wholly erroneous tomorrow."¹

Publicity.—The function of government regulation by pub-

mulating a precedent from which they might be compelled to retract in whole or in part.

Out of the statutes and court and commission decisions have developed the more frequently used methods of valuation based upon (1) Original cost; (2) Reproduction cost; (3) Present cost—*i. e.*, actual replacement cost less depreciation; (4) Market value, based upon earnings. A complete discussion of valuation can be had in such texts as: Homer Bews Vanderblue's *Railroad Valuation*. This little volume is probably the most comprehensive treatment which has yet appeared on railroad valuation. H. H. Hartman, on *Fair Values*, is closely patterned after Mr. Vanderblue's treatise; R. H. Whitten, *Valuation of Public Service Corporations*, is principally a source book upon disputed points in valuation. The *Transactions and Proceedings* of the American Society of Civil Engineers contain many valuable discussions from the engineer's point of view. Other useful standard books are: Henry Floy, *Valuation of Public Utility Property*; Horatio A. Foster, *Engineering Valuation of Public Utilities*; Hammond V. Hayes, *Public Utilities, Their Cost New and Depreciation*; Harry Barker, *Public Utility Rates*. From the extended bibliographies contained in some of the books numerous other sources will be found.

¹Hadley Federal Railroad Securities Commission, *Letter of Transmissal to President Taft*, November, 1911, p. 18.

licity is to furnish the investor with sufficient and accurate information to enable him to exercise his own judgment—the risk of the investment to be borne by the investor. The defenders of the publicity program maintain that the corporate management will be forced by popular opinion to adopt equitable policies toward customer and security holder. Self-regulation of this kind has the decided advantage of simplicity, and is inexpensive to the state. It also eliminates the necessity of a large number of statutes. Where legislative regulation exists, there is a continual need of amendments and especially of the rulings of courts and commissions, which not infrequently lead to conflicting regulations. Amendments themselves are often a forced acknowledgment of the error of a statute.¹

There is a very much mistaken notion, in the minds of many people, as to the extent to which the principles of publicity have been adopted in the United States. The unrestricted policy allowed industrial corporations and the atmospheric character of their capitalization which followed the great consolidation period after 1898 are always cited as conclusive evidence of the evils of non-regulation and the desirability of publicity. One of the most notable features of these ill-fated industrials, which still bear the burden of an ill-advised financial program, was the lack of information given the public who were invited to participate. It is interesting reading to pursue the old prospectuses of these industrials and to see how much could be said about so few facts. Needless to say, this is not publicity.

Publicity in the United States has not been required until recently, and has not been given except where the corporation has been willing to give it. Circulars of speculative security offerings have continually been issued which were entirely misleading, not because of errors in statement, but because of the

¹Germany's law of 1896, regulating stock exchange transactions, is probably one of the most striking examples in modern times of the futile attempts to disregard the fundamentals of economics in law. This statute is deserving of careful study by those who are prone to adopt regulation for regulation's sake without regard to its final economic consequences. For an excellent discussion of the effect of this law, see article by Ernest Shuster in *Economic Journal*, England, vol. x, pp. 1-19; also reprinted in Ripley's *Trusts, Pools and Corporations* (1st ed.), pp. 393-413.

omission of facts. Statements of book values, high and low price, surplus earnings and anticipated earnings, often the only data given, may be entirely misleading when viewed as isolated facts.

Some of the statutes creating state commissions and purporting to force corporations to maintain publicity policies are only so in name, though marked advancement has been made in other states. The English method of controlling publicity is much superior to the American, though the United States national government has demonstrated its ability in the supervision and publicity of the national banking system. In England the government must be given a statement of the capital needs and the proposed case of the new securities, which must be certified to by public auditors. All statements submitted to shareholders must likewise be certified, and the auditors are held accountable for their certification. The result is that the English investor has a much more complete set of facts concerning all underwritings than is available to the American investor, except where voluntarily given by a few corporations.

The Hardley Railroad Securities Commission, which strongly advocated publicity, stated: "Your Commission recommends the adoption of provisions (referring to railroads) regarding publicity which will show the actual facts regarding stock and bond issues in the several states and the considerations received therefor."¹ Because of the character of the Commission, the decided position taken by it in its advocacy for publicity attracted wide attention and gave considerable stimulus to state programs for "Blue-Sky Law" legislation referred to later. The intimation of any guarantee by the government, this Federal Commission considered dangerous procedure, unless the government is willing to give the guarantee of a return on the investments. In speaking of standardization, the Commission further states:

" . . . The government cannot protect the investors against the consequences of their un wisdom in buying unprofitable bonds, any more than it can protect the consumers against the consequences of their un wisdom in eating indigestible food. Un-

¹Hadley, Federal Railroad Securities Commission, *Letter of Transmissal to President Taft* (Nov., 1911), p. 15.

less we are prepared to have government guarantees of interest on railroad investment—a most questionable proposal—the only way in which we can standardize railroad mortgages is the one which we use with savings bank mortgages. We can insist on double security. We can say that at least half the capital of a railroad must be subscribed by stockholders and that not more than half may be raised by borrowing—a difficult requirement under existing conditions. Until we are prepared to pass some law of this kind, the investor must depend upon his own intelligence to protect him from loss. The function of the government is to see that correct information is available.”¹

Quite apart from the advantages or disadvantages of regulation, which one might still advocate, the position of the Hadley Federal Securities Commission on the danger of leading the public to believe that the government will guarantee a rate of return on investments cannot be disregarded. In a temporary crisis, like the European war, when everything must give way, and rightly, to the war needs, such a guarantee may be justified to retain the stability of industry. Regulation, if it serves its full purpose, should stabilize and increase the value of the corporation and thus increase public confidence in the securities, but it should not guarantee. Even if the government should control all utility properties, a guarantee to stockholders and bondholders would be fundamentally unsound. If the corporation failed to earn its return, the citizen would be taxed to pay the return—a “taking from one pocket and putting into another.” And what of the temptation to shift the burden of responsibility? Too frequently, municipal ownership advocates carry some vague notion of fixed returns—not having thought out the evil consequences of guarantees.

If regulation is to add to itself the obligation of guarantee it must sooner or later fail. That the state should have the authority to stop fraudulent sales and excessive issues, no one will deny, but it should never be made responsible for errors of judgment or for the unforeseen developments that result in losses, except in the case of wilful fraud. Nevertheless, it is astonishing how widespread a dependence is placed on the Commissioners' approval of a security issue as a guarantee.

¹Ibid., p. 33.

The danger of such a guarantee, where no control over the management is exercised, is apparent. Former over-capitalization, difference in costs of production at various periods, shifting of policies, changes in management, etc., would make any specific acceptance of such a principle exceedingly difficult. Indirectly the commission can give its assurance by refusing the approval of an issue where a satisfactory return cannot be made by the corporation on the new issue. If additional service is demanded and the corporation's capitalization and management are of good standard, no alternative in equity to the company exists, except to allow both the issue of securities and a rate of return that will give a proper return on the investment.

While a commission with power to control the issue of securities cannot safely depart from this practice, its elasticity of procedure should always permit a fair rate of return upon a fair capitalization. No regulation should be so inelastic as not to permit of a change in rate. The slowness with which the need of increased rates in public utilities was recognized during the European war, illustrates the rigidity with which we cling to a customary charge without any economic justification. An earlier recognition of this condition would have prevented some of the difficulties in the later demand for capital. But this recognition is not a guarantee; it is only an application of equity where equity is due. The underlying motive of the decisions, for example, of the Massachusetts Commission in the recognition of this situation was only a recognition of the equity of the demand and not a guarantee of return.¹

Blue Sky Laws.—Agitation for blue sky laws has been revived since the United States Supreme Court's decision upholding the Blue Sky Laws of Michigan, South Dakota, and Ohio. Legislation directly regulating the issue of securities will be sooner or later adopted by all states. Of the different types of Blue Sky Legislation, the so-called Attorney-General Act adopted by several states has had widest acceptance and with certain amendments to some of its drastic features, furnishes, according to the counsel of the Investment Bankers Association,

¹Massachusetts, *Public Service Commission Reports and Orders* (1914).

“the best basis for any possible uniformity between the states.” The same authority further states of the Federal decision: “The general principle that the business of dealing in securities may be made the subject of a discretionary executive license by the state without violating the Federal Constitution is clearly established by the decisions, as is also the proposition that without violating that Constitution, the conduct of this business may be subject to some, if not a complete control by a state executive.”¹

Twenty-eight states, up to date,² have adopted “blue-sky law” legislation of some form, following the lead of Kansas, which passed its original act in 1911. The states which first adopted blue sky legislation passed exceedingly drastic measures. In the majority of cases, however, they have since recognized the injustice of their early statutes, and modified them.³ The more recent adoption of the New Hampshire law and the defeat of drastic bills in other states, indicate a change from the earlier radicalism and the recognition of more equitable principles in the control of security issues. Until provision is made for more rigid requirements for the permanent appointment of qualified officials to take charge of the administration of these laws, regulation of securities must have considerable limitations.

Practically all of the existing blue sky laws are framed on the common requirement of prohibiting the sale of securities within the state, unless the organization or individual first registers and pays a registration fee. In addition to this, certain information concerning the corporation must be filed. The cor-

¹*Investment Bankers' Association Bulletin*, vol. v (Feb. 15, 1917), p. 67.

²The majority of the important blue sky law acts up to January 1, 1921, have been printed in the Current Bulletins of the Investment Bankers' Association, or they can easily be secured from the state officials. They are changed so frequently that it has not been considered advisable to give detailed citations.

³A comprehensive review of security regulation is to be found in a *Report on Company Capitalization Control* compiled by Thomas Mulvey for the State Department of Canada.

The article by Mr. Robert R. Reed on “Blue Sky Laws” (in the *Annals of the American Academy of Political and Social Science*, vol. lxxxviii [March, 1920], pp. 177-187), should be read by every student,

poration, individual, or any other agency selling, advertising, or negotiating for the sale of these securities is then given an annual license. Certain securities, as those listed on an organized stock exchange and others specified, are usually exempted from the law.¹ The information required of the corporation whose securities are to be sold varies in detail and is not essential for the purposes at hand. The state official practically always has the power to make an investigation, if he deems it desirable—the expense to be borne by the applicant. This official also has the power of revoking the license in case of fraud or insolvency. Investigations are supposed to proceed until the official has satisfied himself that no fraud has been perpetrated. The underlying principle of all of the blue sky laws is modified publicity.

Probably the most important feature in these “blue-sky-law” bills is the restriction placed upon the dealer in securities located in one state and selling securities through personal solicitation, advertising, letters, or other means in another state without official permission of the latter. The purpose of these laws is to prevent a dealer, when forbidden by one state, from going into a foreign state and selling securities in defiance of this restriction. Like all state laws regulating interstate business, it creates a number of unjust situations, and works a hardship upon the legitimate banker in his effort to eliminate fraudulent “get-rich-quick” schemes. The elimination of these fraudulent dealers and their wares no one denies must be accomplished. Is the method provided by these laws, however, the most effective means by which this can be accomplished? An editorial a few years ago put the problem tersely: “Undoubt-

¹Mr. Reed states concerning these exemptions: “Before offering a particular security in a ‘blue sky’ state the issuer or dealer must determine whether the law applies to that security. Certain kinds of sales, such as sales by the owner not in the course of repeated transactions, sales to a bank or dealer and new stock issues to existing stockholders are exempt. Certain classes of securities are also exempt, including governmental and municipal bonds, approved public utility securities and securities senior thereto; securities dealt in on approved exchanges or regularly quoted in newspapers for a year and securities senior thereto; also certain classes of local securities, such as bank stocks, commercial paper and first mortgage bonds or real estate in the state. Manifestly many sound and necessary investment offerings are not included in these offerings.” (Ibid., pp. 181-182.)

edly, the growth in the volume of corporate securities and the increase in the number of investors, make necessary more careful regulation of the marketing of such securities. The corporation laws should be simplified—possibly a uniform state law or a Federal incorporation act may be essential. But the attempts of each state in its own way to deal with this problem are by no means devoid of harmful possibilities, however praiseworthy the aim may be.”¹

A number of these laws are so badly framed that they will never fulfill what has been claimed for them. Many of them, as the first Illinois law which failed so ignominiously, were hastily drawn up; others were constructed by legislative bodies having very little experience with bonds and stocks. If these laws can be built upon the principle to protect and not merely to thwart, they will succeed; otherwise they cannot. Too many investors have assumed that “blue-sky laws” guarantee. They do not—far from it. Certain conditions which insure greater safety are supposed to be met, but where a commission has only the power to see that certain meager facts are filed, regulation can have little consequence. If the facts are complete and the commission has the power to go behind them, positive results will be accomplished. The legitimate banker will always submit complete facts to the investor. It is the banker of questionable repute who must be forced to divulge.

No very complete or satisfactory “blue-sky” regulation can, however, be secured until Federal legislation can be procured. Any one who has given much serious thought to this phase of regulation has practically always come to this conclusion. Furthermore, the real problem lies deeper. Effective control must begin with the original creation of the corporation.² This latter control obviously, as Mr. Reed suggests, cannot be effectively accomplished by state governments where inter-state interest dominates, while the problem is a national one. And as long as only one state is concerned in its particular regulation, many devices can be created by the “fly-by-night” concern which

¹*The Bankers Magazine* (N. Y.), vol. lxxxiv (1912) p. 636 (editorial).

²Robert R. Reed, *Ibid.*, p. 183.

desires to escape the laws of this particular state in securing its capital funds.

Certification of Civil Loans.—A few states make a certification of the validity of the bond issues of the state and its minor civil divisions. While this cannot be called regulation in the same sense as issues of public utility securities are now regulated, it is a form of control protecting the investor. North Dakota, the first state to adopt this measure, in 1889, incorporated it in its constitution. Under the North Dakota constitution no state bond is valid, unless certified by the Auditor and secretary of the state. In the minor civil divisions, the designated financial officer of the civil division must make a similar certification, "stating that said bond or evidence of debt is issued pursuant to law and is within the debt limit."¹ As this fixes the validity of the issue, no claim against the validity of North Dakota bonds can be raised. Similar clauses have been incorporated in the constitutions of Kansas,² Nebraska,³ and Oklahoma,⁴ and in the statutes of Texas,⁵ and West Virginia;⁶ Massachusetts⁷ has applied the certification to the issuance of town notes. The real object of the Massachusetts act is to limit the amount of the floating debt; this subject is discussed subsequently at greater length.⁸ Colorado,⁹ likewise, limits the application of the principle of certification to refunding issues, which must be registered with the State Auditor. New Jersey limits its validation to school bond issues. The approval of the validity of these bonds, as with the North Dakota bonds, is made by the Attorney-General. The Acts of North Carolina limit the period in which suits can be brought to thirty days after the last publication of the ordinance. After this no bond can be

¹Constitution of North Dakota, Art. XII, Sec. 187.

²See General Statutes of Kansas for 1915.

³Constitution of Nebraska, Art. XII, Sec. 2.

⁴Constitution of Oklahoma (1907), Art. X, Sec. 29.

⁵Texas, Acts of 1895, p. 184; Acts 1901, p. 16; Revised Statutes 1911, Title XVIII, Art. 619-625.

⁶West Virginia Statutes (1917), chapter lvii.

⁷Massachusetts, Acts (1910), p. 616; Amended 1912, chaps. xlv and xlix. Also Acts 1915, chaps. lxxxiv and cclxxxv.

⁸See chapters on Civil Loans.

⁹Colorado, Revised Statutes (1908), chapter cxlvii, Art. X.

contested.¹ In the New Jersey law, after which the North Carolina law is patterned, the "validity of bonds shall not be questioned in any suit commenced after the lapse of twenty days from the first publication of the ordinance or resolution authorizing them, unless in violation of the referendum provisions."² Georgia's law departs from the practice of the other states in validating their bonds, by requiring a validation of all county, city, and other minor civil issues by the Superior Court, after the issue has been voted upon by the civil division issuing the bond.³

*State Regulation of Public Utility Issues.*⁴—The object of public utility regulation, as far as the financial aspect is concerned, is to establish an equitable rate for the consumer and a protection, together with a fair rate of return on the investment to the security holder. To secure the proper protection to the security holder both a sufficient equity in property and adequate earnings must be had. Provided the public utility corporation has a sufficient market for its service, a sufficient rate is necessary to give a safe and continuous return to the security holder. The adequacy of this rate to insure this return to the investment made is considered in a subsequent chapter. The reader is again reminded that the problem here is one of the direct control over security issues.

The power of the public utility commission over security

¹North Carolina Public Laws (1917), chapter vxxxviii.

²The Pierson Bond Act, 1916 (New Jersey).

³Georgia Acts, 1897, p. 82; Code of 1911, Sec. 445-451. This law was upheld by a decision rendered in the Supreme Court of the State, December 1, 1908, in the effort to restrain the issuance of bonds by Albany, Georgia.

⁴See also topic in Chapter XIV, on Regulation, for a discussion of Federal Regulation of Railroads, which is not considered under this topic. This omission has been made to avoid duplication. Valuable citations for the student on the Regulation of Public Utility and Railroad Security issues are: Mary L. Barron, State Regulation of the Securities of Railroads and Public Service Companies, (*Annals of Amer. Acad. of Pol. and Soc. Sci.*, vol. lxxvi, March, 1918, pp. 167-190); John Bauer, The Control of Return on Public Utility Investments, (*Pol. Sci. Quart.*, vol. xxxi, 1916, pp. 260-288); Ralph E. Heilman, The Development by Commissions of the Principles of Public Utility Capitalization, (*Jour. of Pol. Econ.*, vol. xxiii, 1915, pp. 888-909); Milton B. Ignatius, *The Financing of Public Service Corporations*, (N. Y., 1918); James C. Bonright, *Railroad Capitalization* (Columbia University Studies in History, Economics and Law, vol. xcv, 1920, p. 206).

issues varies from the mere filing of notice as in Pennsylvania and Virginia, to the complete control of security issues, as in Arizona, California, Illinois, and Vermont.¹ The laws, as a class, lack exactness. In a number of the states, the commissions have had to give an unwarranted interpretation of certain provisions of the statutes in order to secure any semblance of authority. As a result of this situation, a few of the earlier decisions of the commissions in these particular states have shown a tendency to follow the mistaken procedure of making inelastic rules and never departing from them. Only about one-fifth of the state commissions have been given any considerable control over capitalization, although twenty states require the public utility to secure permission from the commission before any security can be issued. Of this number thirteen are required by statute to make investigation or hold public hearings or both.

While bonds, mortgages and notes occupy a minor role as compared to stock in all public utility regulations, the ratio of the bonds allowed to the total capitalization is no less important. Practically all the commissions have in some way restricted the ratio of the bonds or notes to the total amount of capitalization. No general rule has been followed, even in the same class of public utilities. Individual state rulings must be studied to find the requirements of a particular state. Reference to a number of these rulings, however, will give a fairly clear notion of the tenor of these decisions.

Massachusetts, which has been ultra-conservative, does not allow an excess of bonds over the amount of the outstanding stock.² The California Commission has established the ratio of

¹All the states, except Delaware, now have some form of a Public Utility Commission. Of these, twenty-four states have given their Commissions some power of control over capitalization. These states are: Arizona, California, District of Columbia (not of Railroads), Georgia, Illinois, Indiana (not of Railroads), Kansas, Maine, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Texas, Vermont, Virginia, and Wisconsin.

²*Massachusetts Revised Laws*, 1902, Chap. 121; and Acts 1908, Chap. 620, Sec. 1.

bonds at 70 per cent¹ of the total capitalization.² The California Commission has also emphatically stated that it will not authorize the sale of either stocks or bonds for the sale or purchase of a public utility where it appears that the company will be unable to earn a return on its investment.³ This commission has been especially careful to point out that sanction of a security issue under these requirements is not for the purpose of advising investors.⁴ In another case this latter commission placed the ratio of bonds at two to one of stock, or at an amount not to exceed 70 per cent of the proposed expenditures.⁵ Maine has made the same ratio of two to one in a street railway case,⁶ though an allowance was made in an earlier case applying to a water company.⁷ The New York Commissions of the First and Second Districts have ruled that the amount of bonds should be fixed by the margin of earnings above expenses, but this rule has not been strictly followed.⁸ The New Jersey Commission also states that there must be sufficient evidence that fixed charges can be met. The Wisconsin and Indiana⁹ statutes provide that the ratio of bonds shall be a "reasonable" proportion of the capitalization, but leaves the decision of the matter in the hands of the Commission.

Some of the Commissions have fully appreciated the necessity of an elastic interpretation of the amount of bond issues. A careful study of the trend of these decisions reveals more

¹*Public Utility Reports Annotated*, 1915, A 787, D 347. The statutes of California give the Railroad Commission the power to issue bonds above the amount of stock, or equal to or above the amount of capital stock.

²No state attempts to regulate securities issued for less than twelve months. Arizona and California are the only states which require the commission's consent for refunding of shorter maturities. The statutes also almost invariably state that the issue shall be made for lawful and corporate purposes, which purposes in many of the statutes are enumerated in detail. California has also made frequent requirement of specified earnings. [Re Valley Natural Gas Co. (Cal.) P. U. R. 1918 C 1.]

³*Public Utility Reports Annotated*, 1915, B 38.

⁴California R. R. Commission, Re. Public Service Corporation (Sept. 3, 1917), Decision No. 4636.

⁵*Ibid.*, Re. Clear Lake R. R. Co. (Nov. 13, 1917). Decision No. 4833.

⁶*Ibid.*, Re Fresno Interurban R. R. Co. (1915).

⁷*Maine P. U. Report*, Re Rumford Falls & B. Street Ry. Co. (1917).

⁸*Ibid.*, Re Yarmouth Water Co. (1915).

⁹See recent case Re United Gas & E. Co. (Ind.) P. U. R. (1918) E 311.

and more a recognition of the emphasis that should be placed upon the earning power.¹ The dominant question then is: What fixed charges over a period of time do the earnings of the utility indicate they can carry with safety? In new enterprises, or extensions, estimation of earnings of course becomes a larger influence; consequently large margins for the safety of issues must be required. Where conservative margins are enforced, ample property protection is seldom lacking. But, even where earnings are sufficiently large, according to this standard, too rigid application of the rule in new construction out of bonds, might be equally objectionable. Provisions must also be made against such a contingency as a reaction in earnings in the future. No investment bank ever overlooks this fact.

In reorganization, the recapitalization of public utilities has been based on: (1) a value of the physical property fixed by the commission;² (2) earnings;³ (3) capitalization based upon a "fair value" of the property and earnings of the corporation prior to receivership.⁴ As would be anticipated in fair-minded rulings, these rules have been given considerable elasticity. In the majority of reorganizations the recapitalization has been scaled down. Kansas, which has generally not allowed an over-issue of securities,⁵ has permitted an excessive issue in reorganization, when it has already been approved by another state.⁶ Illinois has ruled that there is no reason why it should ascertain the value of subsidiary properties, as long as the capitalization of the consolidated companies does not exceed the capitalization of the independent properties. Upon the face of it, this reasoning seems absurd. On the other hand, it is recognized that the amount of capitalization allowed by any one of these commissions is primarily dependent upon the method of valuation. An ultra-conservative allowance in the

¹*P. S. C. Reports*, First District, N. Y., vol. v., p. 22.

²Missouri, *Second Annual Report Public Utility Commission*, p. 84, seq.

³California, *Railroad Commission Opinions & Orders*, No. 11.

⁴Several Commissions have adopted this as their standard.

⁵*Kansas, P. U. R. Re. Mo. P. R. Co. (1917)*.

⁶*Kansas, P. U. R. Re. St. Louis & S. F. R. R. Co. (1917)*.

amount of capitalization to property values might be wholly defeated by a loose method of valuation.¹

Again, as over-capitalization is chiefly the result of the over-issuance of stocks, the prices of these securities are the more questionable. The procedure of Massachusetts which has been followed for many years has also been more exacting in this respect than that of most states, as it requires that neither stocks nor bonds of public utilities shall be sold for less than par. It also requires the use of the "auction clause" and other means in order to force the sale of securities above par.²

Most states require that a public utility issue stocks at par, but allow the issuance of bonds at a discount. This control over the issuance price of securities is usually given by statute to the state commission. The Missouri and New Hampshire statutes prescribe the sale of stock at par, though bonds may be sold at discount. The state commissions of Indiana, Maine, New Jersey, New York, and Wisconsin have all ruled that stock must be issued at par, but bonds may be sold at a discount. California, Georgia, and Ohio Commissions permit the sale of both stock and bonds below par. Where the amount of security is not used as the basis for the rate, there seems to be no justification for not allowing sale at a discount in the case of securities of an established company (not a new corporation). It may be also under certain market conditions a serious handicap to a corporation if it is forced to issue its securities at par. It may also deprive the public of needed service if the corporation refuses to make the issue under these conditions. Where the bonds are sold at a discount an amortization fund should be provided. California, Illinois, Maryland, Missouri, New Jersey and New York Commissions have followed the practice

¹*Illinois, P. U. R. Re. Illinois Northern U. Co. (1917)*. If no par value stock can be issued by public utilities in any state, this fact would have to be taken into consideration in the discussion of the above question.

²In Wisconsin and Indiana, the commission has permitted bonds to be sold as low as 75, Missouri at 70, New Jersey at 70. California has varied her prices between new and established corporations. Prices for new corporations have been as low as 80 and in old corporations from 85 to 95. Texas does not allow a sale price of bonds for less than the full value.

of requiring that such an amortization fund shall be created. The Wisconsin Commission has varied in its practice. Some of the more recently created commissions, as in Georgia, do not require any accounting of this discount. This is bad practice, as the amount of the discount is only an indirect interest charge that should be added to secure the total interest charge of the issue.

The same difficulties also arise in the control of public utility security issues, as in the general policies of taxation or any other business where the state attempts to control interstate and intra-state business by the same statute or method of control. A few statutes make no distinction between domestic corporations operating in or outside¹ the state; some give the power of issuance only over domestic corporations² operating in the state and others assume jurisdiction over all corporations doing business within the state.³

Under the present methods of legislation, two different commissions may give separate and different approval to the same issue of securities. Where a railroad passes through a number of states, the large powers granted to one commission, the differences in decisions, and the failure of common agreement may work to the embarrassment of both the corporation and the public.⁴ Mutual courtesy, however, is creating the custom of one state's respecting the findings of another state commission where a corporation's properties extend into or through that state, as with railroads. On the other hand, the information on which a commission may be forced to pass may not be original information; or the state which the commission represents may be more rigid in its exactions than the state granting the privilege. But, why should a commission in New England pass upon the building of a waterworks in Oregon, or why should Oregon regulate the securities of a corporation organized in Massachusetts? As frequently happens in railroad corporate

¹Arizona, California, Illinois, Massachusetts, and Missouri. See also P. U. R. 1918 C, p. 6; Sec. 614-55; P. U. R. 1918 B, p. 265.

²Maryland, Maine, Nebraska, New York, and Vermont.

³District of Columbia, Kansas, Michigan, New Hampshire, Ohio, and Wisconsin.

⁴*First Annual Report of the Arizona Corporation Commission*, p. 826.

organization, it may be that no property is located in the state of incorporation, yet the state determines upon the issuance of millions of securities in which it has no interest. It is a clearly defined power of a corporation to issue securities under the authorization of the state of incorporation and to be restricted only by a foreign state, where property is located and a specific lien is made on this property.

Though small use has been made of debentures in this country, the present position of the courts on unsecured debts would lead to the belief that this form of security could be used in evading the unsecured debt requirement of the law.¹ Fear of retaliation would, however, probably check the abuse of this privilege, even if the courts should maintain it.

The vagueness of the statutes of a number of states also adds to the perplexity of determining the state's own assumed jurisdiction. Further complication arises where the statutes grant power only to domestic corporations, but the commissions extend their jurisdiction over securities issued on properties in foreign states.² One solution of these difficulties where interstate interests exist seems to lie in Federal incorporation, which is the almost universal conclusion reached by those who have given the problem thorough study. This point was emphasized under the discussion of blue-sky laws.

¹Ralph E. Heilman, Control of Interstate Utility Capitalization, *Journal of Political Economy*, vol. xxiv (May, 1916), p. 487.

²Vermont, 1915.

CHAPTER XIII

TAXATION OF SECURITIES

The present chapter is primarily devoted to the problem of the direct taxation of investment securities. The purpose is not to discuss corporation taxes as such, excepting where these taxes are a direct part of the tax on securities. To differentiate the effect of the two taxes, however, is often difficult. But if one is to have a complete understanding of Federal and state taxation upon securities, he must run the whole gamut of corporation taxes. Neither is the purpose of this discussion to suggest or defend any tax theory of securities or to give an exhaustive treatise on the existing tax laws. The primary object is to state the more fundamental principles involved in security taxation and the effect upon the yield of the security.

In dealing with existing tax laws, one is confronted with continuing changes which soon make all illustrative material out of date. The inability to understand fundamentals or an unwillingness to face a thorough-going change has forced the adoption of many make-shifts and compromises. As a consequence, many of the artificial distinctions that have been set up between tangible and intangible property (including securities, etc.) have not succeeded in effecting any more equitable distribution of taxes. Fundamentals, however, in the science of taxation continue the same.¹

The Basis Upon Which the Security Tax Is Levied.—In the discussion of the effects of taxation, it is first necessary that the reader shall clearly understand the interpretation given to

¹To the reader desiring to obtain a more complete understanding of the theory of taxes, such works as the following are suggested: Edwin R. Seligman, *Essays in Taxation* (Macmillan & Co., 1913); Hastings Lyon, *Principles of Taxation* (Houghton, Mifflin & Co., 1914); Carl C. Plehn, *Introduction to Public Finance* (Macmillan & Co., 1920); Henry C. Adams, *Finance; The Science of Finance* (Henry Holt & Co., 1906).

the value of property or security upon which the tax is based. Excepting by the investor who has investigated the financial system of a state, no distinction is made between real and market valuation or between actual and assessed valuation. They may be, and generally are, quite distinct, and an understanding of this distinction is the first essential to an understanding of a tax on securities. In most states, the assessed valuation is given as a certain percentage of the actual fair or market value of the property. The question of a high rate or a low rate of a tax upon securities, must, then, always be interpreted in point of view of the manner of assessment. For illustration, the actual amount of a tax of 2 mills upon a \$50,000 security assessed at 100 per cent of the actual fair value of the security is four times as great as the tax of 2 mills on a \$50,000 security assessed at 25 per cent of its actual fair or cash value. The consensus of opinion now is that an assessment of full value tends to a fairer assessment, and fortunately the present trend in state legislation is to accept this as the most equitable method.¹

In addition to this problem of valuation one finds a sharp distinction frequently made in the method of evaluating securities or intangibles and other property. In levying a personal property tax a value other than that of the market is often used as a basis on which to determine the value of the security. Why a different basis of valuation should be used for the levying of this tax has never been completely explained. The value of securities like all other property is based in the long run upon the earning power, *i. e.*, the rate of return. If this basis were used, as far as taxes are concerned, there would be no difference whether the security were issued below or above par or whether the price fluctuated after its issue.²

The Effect of the Tax Levy.—The two forms of taxes directly affecting bonds are the personal property tax and the income tax; the former is levied on the principal of the bond, the latter on the interest of the bond. For illustration, in the

¹As only one class of items—namely, securities—is considered, it is not necessary to discuss the effect of the various items that enter into the valuation of the wealth of a state.

²Hastings Lyon, *Principles of Taxation* (1914), p. 95.

personal property tax, if a 2 per cent tax is levied it would be on the principal amount, say of a \$500 bond. This would amount to a tax of \$10. If the nominal rate on the bond were 5 per cent (or \$25) the net yield would then be \$25-\$10 or an actual net income on this bond of \$15 for the year to the holder. If a levy is made on the income by the state, to secure an equivalent return to the state a tax of 40 per cent would have to be levied on the \$25 income of the bond. In either case the payment of the tax must be deducted from the interest on the bond.

To enable the security holder to obtain the full amount of the nominal income of 5 per cent, the above \$500 bond must be purchased at a discount. The amount of this discount will be equivalent to the amount of the capitalization of the annual tax paid. In an original issue of bonds, the corporation is thus forced to pay a larger return on funds borrowed. Or if the original purchaser had bought the bonds before the tax was levied and then was forced to sell it, he would suffer the loss of the capitalized amount of this tax in the sale of his bond. Applying this capitalization principle to the \$500 bond above, the sale price of the bond would be lowered to \$300. That is with the capitalization of the \$10 tax at 5 per cent (the nominal rate on the bond) would be \$200; deducting this from \$500 leaves \$300, the price at which the bond will sell. The new holder, out of the net balance of \$15 left after deducting the \$10 tax from the \$25 nominal amount paid, will have in this \$15 net return a return of 5 per cent on his \$300 investment.

If the corporation originally issuing bonds under these conditions desired to sell them at par, the rate necessary to make up this tax would have to be added to the interest rate. In the above bond, if the principal were taxed to realize a tax of \$10, a rate would have to be added to the yield to increase the yield \$10 a year, or a total amount of \$35 to the holder. In order for the \$500 bond to yield \$35 a rate of 7 per cent would have to be paid by the corporation for its money. If the 5 per cent rate is maintained by the corporation, the bond will sell at a sufficiently low rate to yield the 7 per cent to the holder of the bond. Consequently, whether the corporation uses either one or the other of these methods the cost of its money will be 7 per cent. Unless the corporation is willing

to meet this demand for a higher yield for this particular risk, capital will be diverted to other fields.

The More Common Methods of Taxing Mortgages, Bonds, and Other Securities.—The methods or plans of taxation and their actual effect upon the yield of the security can only be discussed from their general rather than their specific application. If every security sold in Chicago, for example, were confined to this market and only subject to the local state laws, a fairly accurate mathematical rule could be established. But this is not the case, for general market influences affect the Chicago market. And in every state to which a security may be brought, a different tax law exists. If a tax exists in one state and not in an adjoining state the effect is obviously to drive securities from the state with the tax. While general classifications of these laws may be made, these individual differences in application give different results in net yield. And one need not argue the importance of the fractional differences in the net yields of high class securities.

The vagueness or the very character of the law, as frequently as anything else, makes it impossible to determine the effect of a tax. Mr. Roy Osgood has given a good illustration of this in the Chicago market:

“As a typical illustration of the difficulty of computing the influence of a state tax on securities consider the situation in Illinois. This state has a general property tax law and the constitution does not allow classification of property for tax purposes. For some years the tax rate has averaged around 2 per cent on the actual value of bonds. The rates for the several counties have varied, but in Cook County, where Chicago is located and where the major part of the personal property of the state has its tax situs, 2 per cent has been the rate for all practical purposes. Applying the capitalization theory, 5 per cent industrial bonds owned in Chicago, when the normal investment return on such bonds is 5 per cent, ought to sell at 60 and new issues of such bonds ought to bear 7 per cent. Neither of these results has followed, so the tax influence is overcome by other influences. Such bonds have sold for practically the general market price of securities of like rate and character. It is true in Illinois, as in other states having an unclassified property tax, that comparatively little personal property is reached by taxation so that the effect of the tax is negligible compared with the effect of the condition of the security market. The

factor of competition under such circumstances completely obscures the effect of the tax rate.

If, however, the effect of the tax rate be considered in its application to securities of a local nature having a restricted local market, the effect might be more pronounced."¹

Out of the efforts to secure a modification of the general property tax on intangibles, there have evolved a number of modifications along the same general lines, none of which can really be said to be a success. The majority of these modifications made in the constitution and statutes have related to civil loans issued in the state, and to mortgages and mortgage bonds on real estate within the state. With the exception of the income taxes and those directly affecting civil loans few changes have been made in the laws affecting the direct taxation of bonds.

The two important plans most widely accepted in mortgage taxation, although there is considerable overlapping of land and mortgage tax classification,² are: The Classified Property or Low Rate Plan, and the Recordation Method. The majority of the states, however, still continue to tax mortgages under the old general property tax.³ The differentiation most com-

¹Roy C. Osgood, *The Effect of Taxation on Securities*, *The Annals of the American Academy of Political and Social Science*, vol. lxxxviii (March, 1920), p. 159. (The above tax law referred to by Mr. Osgood will no doubt be changed if the present efforts to secure a revision of the Constitution succeed.)

²In 1910 more than three-fourths of the state constitutions prohibited the classification of property for taxation. About one-half of the states now permit such a classification (January 1, 1920).

³The following states tax all mortgages: Arizona, Arkansas, Florida, Georgia, Illinois, Indiana, Kansas, Kentucky, Missouri (with exceptions), Montana, Nevada, New Mexico (new act pending January, 1920), North Carolina, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Virginia and West Virginia. The statutes of 1919 of South Dakota and Kentucky provide for a so-called registry tax which is a recording tax.

The states not taxing mortgages on real estate within the state are: Colorado, Louisiana, Maine (bills now pending to tax personal property quite likely to pass), Maryland, Massachusetts, Nebraska (if tax free clause in instrument), New Hampshire (if rate on mortgage is not over 5 per cent), New Jersey (except railroad bonds outside of state), Vermont (on property in state, if rate is not in excess of 5 per cent), and Wyoming.

The following states have no tax on mortgages: California, Delaware, Idaho, Mississippi (if the rate on obligation does not exceed 6 per cent), Utah, and Washington. Of these, California, Idaho, and Utah tax bonds secured by realty outside of the state.

See also Recording Tax footnote, and Income Tax footnote.

mon in the past has been between mortgages upon real estate in the state and mortgages on real estate outside of the state. In some states, bonds issued upon real estate are given the same classification as mortgages. In others, bonds and mortgages are given an individual classification. The newest departure from the old form of taxing bonds under the general property tax is the Debt Secured Tax statutes,¹ which are all Low Rate Plans. Two other forms of taxes which are not a direct security tax, but a tax upon income, and have a more important effect on the income of the individual holder of securities, are the Income Tax and Inheritance Tax. As the Transfer Tax applies only to stock, it is not necessary to discuss it in this chapter.

The Low Rate plan for the direct taxation of all mortgages has had the widest acceptance of any of the special plans of tax on investment securities. The method of taxation is the same, as in the general property tax, except that a lower rate is adopted. Pennsylvania, which has used this plan the longest, taxes all forms of indebtedness and stocks on the same basis. Where exemption privileges are granted, they are usually to capital stocks of domestic corporations. The real purpose of this plan, as with all of those suggested here, is to encourage a declaration of all personal property.

Of all the plans for the taxation of mortgages, the Recordation Method² is the simplest in administration. From the viewpoint of the mortgagee, it has the advantage of an assured cer-

¹Michigan, Minnesota, Missouri and North Dakota have all adopted what they term the Debt Secured Tax; as previously stated, however, it does not vary in principle from the Low Rate Plan. Oklahoma has in effect the same thing in its flat rate of 2 per cent of the face value of bonds, and Iowa has a flat rate of 5 mills on moneys and credits. New York, which has been adopting a number of different taxes in rapid succession, passed in turn a Mortgage Recording Tax, a Debt Secured Tax, a so-called Investments Tax, and lastly, an Income Tax, each superseding in whole or in part the previous tax.

²Alabama has a mortgage recording tax for mortgages on real estate in the state. Iowa has a special tax of 5 mills on all mortgages. Pennsylvania and Rhode Island tax all mortgages 4 mills per annum. States having income taxes reach the income of the mortgage by this regular source. Kentucky imposes a tax of 20 cents on each \$100 of the mortgage on real estate, if it does not mature in five years. Ohio exempts mortgages secured by property in the state if registered, and a fee of $\frac{1}{2}$ of 1 per cent is paid in addition to the recording fee. Tennessee has a so-called privileged tax of 15 cents per \$100 on mortgages over \$1,000, which must be paid before the instrument is recorded. North Dakota has modeled its law after that of Minnesota.

tainty of the tax being shifted to the mortgagor. This plan, which was originally adopted by most states, has since been either modified or supplanted by other laws. Minnesota was among the first to adopt a modified recording tax. This tax has attracted considerable attention. A discrimination is made under the mortgage-recording clause in this law between indebtedness on Minnesota real estate and other indebtedness. If either real estate bonds or mortgages upon Minnesota realty are recorded and pay a fee of 1.5 mills on mortgages of less than five years and 2.5 mills on mortgages of more than five years duration, these securities are exempt from further taxation. All other securities are subject to the 3 mill tax, and in comparison with mortgages taxed under the Minnesota realty recording tax are discriminated against to an extent which seems hardly justifiable.

The Michigan recording tax, which applies to the tax on loans secured by liens on real estate only, was adopted as a modification of the former New York recording tax. The Michigan tax is compulsory, and substitutes a single five-mill recording tax in place of the old recording fee and annual tax, from which this tax must be kept distinct. Ohio's law, which is a modified form of the recording tax, was adopted for the purpose of avoiding double taxation on mortgages and real estate.¹

The most recent tax reform which has had an important effect upon securities is the income tax. This tax, which has long been used in Europe, is not new to this country. Approximately twenty states up to the adoption of the Wisconsin law in 1911 had experimented with an income tax.² These tax systems were usually applied only to incomes which were not reached by other taxes, such as salaries. Lack of centralization

¹Massachusetts, for illustration, has a registration charge of \$3.00 per annum which exempts from any other taxes when the tax is secured by tangible property whether within or without the Commonwealth. Alabama and South Dakota also have a similar statute.

²A list of the states which have adopted the income tax is not given here for the reason that almost as soon as this book leaves the press such a list would be antiquated; but any investment banker can readily furnish such a list. These conditions apply to all personal property taxes treated in this chapter.

in the organization and application of these taxes, however, doomed these systems from the beginning, regardless of their other faults. Consequently, this form of taxation was considered impractical for a long time.

The renewed emphasis upon taxation with the increasing demands for revenue and the greater appreciation of the injustice of the general property tax has revived the agitation for this tax. The adoption of a Federal Constitutional amendment and finally an income tax law, as well as the adoption of the tax by a number of the states, indicates a permanent acceptance of this principle of taxation. The adoption of this tax by Massachusetts and New York, the two leading investment centers of the country, will make the income tax effective for a very large amount of holdings. Of the nearly sixty foreign countries and their minor political divisions which have adopted the income tax, none have abandoned it. The large number of methods and practices now used in levying this tax indicates that these laws are still in the experimental stage and many new adaptations must grow out of practical experience. And as these laws are in their transitional stage, too much emphasis cannot be placed upon the present operation of the law. A large number of corrections must be made in the existing statutes.¹

The original Federal Income Tax Law was adopted in 1913, and has been revised three times at the present writing, and is quite likely soon to receive other revisions. The most effective changes in the tax upon the income of individuals,² which con-

¹The importance of these statutes has caused the important banks in every state having an investment business, to publish numerous pamphlets explaining the statutes and their operation. These may be easily secured by the reader.

²While the following rates and exemption will be changed—thus making this summary obsolete—they will serve for illustrative purposes.

INCOME TAX LAW SIGNED FEBRUARY 24, 1919

The Rates of Taxation on the Income of Individuals

A—Normal Tax on citizens and residents of the United States:

	For 1918	For 1919, and thereafter
On first \$4,000, in excess of credits.....	6%	4%
Balance over \$4,000.....	12%	8%
For non-resident aliens:		
On total income from sources in the United States in excess of credits	12%	8%

cerns us here, will doubtless come in the eventual lowering of the rates. Under the present law the tax upon securities¹ (held by a married man with no children and without income other than that from securities) would normally range from \$60 on an income of \$3,000 to \$703,030 on an income of \$1,000,000. Because of the graduated rates, it is impossible to indicate any general effect upon security prices. While the tax is measured on the aggregate income, the effect upon the yield to the holder having a total of \$5,000 in bonds to the holder of \$1,000,000 in bonds is quite different.² The principle as applied to the present law is illustrated in the following table:

Nominal Rate and Net Yields if Securities are Sold at			
Incomes	Par and Not Taxed		
Taxed	4%	5%	6%
Net yields when taxed under the present law with individuals having these respective incomes.			
\$ 5,000	3.904	4.880	5.856
10,000	3.764	4.705	5.646
50,000	3.265	4.081	4.897
100,000	2.752	3.441	4.129

The present Wisconsin Income Tax, the oldest of the income taxes, is a progressive income tax, and practically all forms of

B—Surtaxes are imposed on all incomes over \$5,000. It starts with 1 per cent on net incomes from \$5,000 to \$6,000, and increases 1 per cent for every \$2,000 increase of income up to \$100,000, thence by smaller advances until the maximum of 65 per cent on \$1,000,000 is reached.

C—Personal Exemptions are \$1,000 for single persons and \$2,000 for married persons, the head of a family being allowed an additional exemption of \$200 for each dependent.

Other general exemptions are all forms of insurance premiums and payments, value of property from gift or bequest (not income from), interest on bonds of a state, territory, or subdivision thereof, District of Columbia and designated United States bonds, income of foreign governments from investments in the United States, accident and health insurance payments, and amounts received from military service and other service essential to conducting of war. State officials are presumably exempt from taxes on compensation received from the state.

D—The list of deductions allowed and to be made in obtaining net income are exceedingly complicated and can best be procured from the statute and the treasury rulings.

¹Because of the constant change in *Rulings by the Internal Revenue Department* information is not complete without consulting such services, as *Corporation Trust Company Tax Service*, Prentice-Hall *Tax Service*, etc.

²The effect of Exemption Privileges are discussed under that topic.

income are taxed under this statute. Income of corporations not subject to this tax is charged against the person, or corporation, etc., receiving that income,¹ with an exemption of any direct tax on any form of personal property. The tax is also a substitute for the personal property tax. If a personal property tax is paid, the amount of that tax is deducted from the income tax.² Thus, if the income tax were \$50 and a personal property tax of \$25 had been paid, only \$25 would be due on the income tax. The same deduction would be allowed the corporation, where a tax is paid on property.

The Massachusetts Act of 1917, which provides for a flat 6 per cent rate on intangible property,³ and 1½ per cent upon income derived from annuities, trades, and professions, is a partial income tax. The effect of this has been a decrease from the approximated average under the old law. The effect of such a tax is, of course, perfectly apparent.

The Massachusetts tax, unlike the Wisconsin tax, is not a progressive tax. Interest on bonds is generally taxed except on bonds and notes secured by real estate and taxable as real estate in the state, but only to the amount exceeding the value of the mortgaged real estate, United States bonds and the civil issues of the state and certain of its minor civil divisions. Dividends on corporations are taxed, except stock in Massachusetts corporations, national banks and foreign corporations whose franchises are subject to a tax in the state. And primarily, all dividends of voluntary associations are taxed, unless the voluntary associations file agreement to pay the tax. It is not safe to assume that the shares are exempt, until evidence is had of the filing of the agreement.⁴ There is also a tax of 3 per cent

¹The rate is progressive, beginning with 1 per cent on the first \$1,000 and increasing to 6 per cent on \$5,000. Exemptions: \$800 for individuals without families; \$1,200 with families; and \$200 for each child.

See T. S. Adams, *The Wisconsin Income Tax*, *American Economic Review*, vol. i, No. 4 (Dec. 1911), pp. 906-918.

²Wisconsin Income Tax Laws, Chap. 658, Laws 1911, Sec. 1087.

³See Act for rates on earned income in 1917, *Income Tax Act 1917*, sec. v. See a good, short, general discussion of the Act by E. J. Bullock in an Introduction to a copy of the statute issued by the Old Colony Trust Company, Boston (1916).

⁴The taxpayer may make deductions for indebtedness of such proportion of the interest paid on his total indebtedness as the income

upon the excess of gains over losses from the purchase or sale of intangible personal property. Both the broker and individual speculator are subject to this tax. The shifting possible under this partial income tax of Massachusetts is one of its serious drawbacks and must put it to a severe test when judged by the canons of just taxation. If state tax reforms move forward with any great rapidity, this statute will undoubtedly be amended. The New York law, which closely follows the Federal Income Tax Law approved in 1919, is, like the Wisconsin law, a progressive income tax.¹ Other instances might be cited but these are sufficient to indicate the trend of the income tax in relation to investment.

While the inheritance tax² is not a direct tax upon securities, the investor who is purchasing, primarily, for his legacy, must give it careful thought. This particularly applies to the exemptions allowed by the different states and becomes increasingly true as the holdings grow in amount. As the larger legacies have been confined to a narrow group of cities in the New England and Middle Atlantic states, and the statistics are relatively new, no very wide popular interest has been taken in this problem. But with the increasing number of fortunes, especially those of moderate size, and the increasing interest in taxes, attention is being directed to the effect of these taxes upon securities. What the direct effect upon security values is, it will be difficult if not impossible ever to measure accurately.

The three most important practical points for the prospective legator to study are: (1) whether the tax is upon the estate

which he derives from taxable tangible property bears to his income from all sources; and an exemption of \$300 of income from tangible property is allowed to persons whose total income does not exceed \$600.

¹The tax is imposed at graduated rates as follows: The first \$10,000 at 1 per cent; next \$40,000 at 2 per cent; over \$50,000 at 3 per cent. Securities exempted are: obligations of the United States and its possessions; securities under the Federal Farm Loan Act of July 17, 1916; state War Finance Corporation bonds of New York, and the bonds of its political subdivisions. Personal exemptions of \$1,000 for single persons, and \$2,000 for the heads of families are allowed.

²For a complete discussion of the operations of the Inheritance Taxes see Max West, *The Inheritance Tax*, Columbia University Studies in History of Economics and Public Law (2nd ed. 1908). Also Edwin R. A. Seligman, *Essays on Taxation*, Chap. V (8th ed. 1912) pp. 126-141. More than four-fifths of the states now have some form of an inheritance tax.

as a whole, or on the individual shares received by the legatee; (2) whether the character and the amount of the tax rate are equitably distributed; (3) whether the legator at his present residence will be subject to more than one inheritance tax.

The general practice in the United States has been to tax the estate as a whole, though the principle of taxing the shares received by the individual is gaining wider acceptance. There seems to be no reason why discrimination should be made against an employee receiving \$5,000 from a \$1,000,000 estate, as compared with one receiving \$5,000 from a \$100,000 estate, by taxing the former several per cent more than the latter.¹ Tax rates on inheritance in the United States have also been increased and the amount of the exemption has been lowered especially in the collateral inheritance (that of legatees not lineal descendants). The movement toward the progressive inheritance tax has also made a decided progress. The range used by the states is wide, the tax varying from 1 to 5 per cent on legacies inherited by lineal descendants and 1½ to 25% on collateral legacies. The tendency in legislation is toward a rapid advance in the increase of rates on the latter legacies. Exemptions for the taxes on collateral inheritances average from \$100 to \$2,000, and direct inheritance from \$2,000 to \$10,000. A few make exemptions as high as \$25,000.²

¹Edwin R. A. Seligman, *Essays on Taxation* (8th Ed.), p. 136. Also see Report of the *Special Tax Commission of New York*, of which Professor Seligman was a member.

²One of the serious difficulties growing out of the muddled state of the inheritance tax laws is the duplication resulting from overlapping jurisdictions. Mr. W. D. T. Trefry, whose recommendations were followed by the Massachusetts legislature, tersely and aptly states our whole problem of duplication in inheritance taxes, in his annual report for Massachusetts (January, 1912):

"Investors all over the country are carefully seeking for securities which are subject to no legacy tax in a state other than that of the domicile of the owner. If Massachusetts shall cease to tax non-resident estates on account of their share in Massachusetts corporations, these shares will become much more attractive for foreign investors . . .

"We now tax a non-resident estate with reference to any savings of other bank accounts in this commonwealth, on account of any bonds of whatever nature which at the time of death of the owner are physically present in this commonwealth, and on account of any debt due him from a resident of Massachusetts. It may be that such non-resident has never lived in Massachusetts; that he puts his money and securities in the safe-keeping of our banks for his convenience only; that his loans

The Federal Estate Tax originally passed as a part of the Revenue Act of 1916 has been subjected to three revisions and is very likely, with the new changes which will be made in the revenue act, also to be changed.¹ The Federal tax is not placed upon the property but upon the transfer. It is levied upon the entire net estate, and the tax must be paid out of the estate before the latter is distributed. The New York inheritance tax, to the contrary, is an individual inheritance tax. It is a tax on the right of succession, and the tax is levied on the basis of the market value of the property and the character of the kinship. The Federal tax is placed upon all estates which exceed \$50,000, except that for the holdings of a foreign resident, the tax is applied only to that part of the property located in the United States. The tax is payable within one year after death.²

to Massachusetts residents are good business for him. And yet we now tax the estate of such person because he has had confidence in our institutions and our citizens. . . . So long as Massachusetts and other states tax legacies and successions in this manner, we must expect confusion and complaint against tax laws. In my judgment confiscation rather than taxation fitly describes this practice.

"It is well known that the banks and trust companies of Rhode Island which has no inheritance tax law are now the depositories of large amounts of money of non-residents. If we shall cease taxing the estates of non-resident decedents with reference to their personal property our financial institutions will receive large amounts of deposits from foreigners. Such money in the hands of banks and trust companies becomes a part of the working capital of our industries. To secure its use is wise action, and in my judgment ought not to be delayed . . . " (*Proceedings of the Sixth State and Local Taxation Conference 1912*, pp. 299-300.)

The states that have statutes for the purpose of preventing double taxation of intangibles are: Arkansas, Connecticut, Idaho, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Missouri, Montana, Nebraska, New York, North Dakota, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia and Wyoming. (1918.)

¹The last revision of this act in force at this writing is that of February 25, 1919.

²The amount of the tax is determined by taking the following percentage of the values given opposite:

Per Cent	Exceed	Exceeding
1	\$ 50,000	\$
2	150,000	50,000
3	250,000	150,000
4	450,000	250,000
6	750,000	450,000
8	1,000,000	750,000
Etc.		

While the Stock Transfer Acts do not apply to bonds, brief mention of their characteristics should at least be made. The New York statute,¹ the forerunner of these laws, requires that all sales, or agreements to sell or memoranda of sales of stock shall be subject to a tax of two cents for each hundred dollars of the stock's face value except where the shares have no monetary value, when the tax is at the rate of two cents on each share. Payment of the tax is noted by the affixing of an adhesive stamp. The transfer of a certificate without the stamp is considered a misdemeanor, and a transfer without the payment of the tax cannot be used as a basis of legal proceeding.

The Federal Stock Transfer Tax, which is quite similar to the New York law, reads as follows:

"All sales or agreements to sell, or memoranda of sales or deliveries of or transfers of legal title to shares or certificates of stock or of profits or of interest in property or accumulations in any corporation, or to rights to subscribe for or to receive such shares or certificates whether made upon or shown by the books of the corporation or by any assignment in blank, or by any delivery, or by any paper or agreement or memorandum or other evidence of transfer or sale, whether entitling the holder in any manner to the benefit of such stock, interest, or rights or not, on each \$100 of face value or fraction thereof 2 cents, and where such shares are without par or face value, the tax shall be 2 cents on the transfer or sale or agreement to sell on each share, unless the actual value thereof is in excess of \$100 per share, in which case the tax shall be 2 cents on each \$100 of actual value or fraction thereof." ²

*The Place of Taxation for the Holder.*³—Where should a man pay his taxes? Should all taxes be paid where the security holder resides? Shall the tax be paid where the corporation's

¹N. Y. *Tax Laws* of 1909, as amended, Secs. 270-280.

²*Federal Revenue Act* of 1918.

³There is a hopeful sign in the recognition of situs now coming forward in income tax decisions. In a recent Massachusetts case, "as applied to income by residents through non-residents' trustees, . . . the court is urged to prevent the taxation of income of a resident from securities held by a non-resident trustee, the securities not being taxed to the trustee by the foreign state." The court states: "This principle of taxation, just itself and based upon recognition of like rights of sister states, and manifestly aimed at the elimination of duplicate taxation upon the same property in different states, does not seem to violate any guarantee of the Fourteenth Amendment of the Federal Constitution." . . . *Maguire vs. Tax Commissioner*, 120 N. E. 162.

property is located or in the state in which it is incorporated? If, under the latter condition, the taxes paid are to be divided between the states, upon what basis should they be apportioned? Should a resident of Chicago owning a private manufacturing plant in Missouri not be taxed on the plant, and the holder of a security bond of a similar enterprise be taxed? Should the bond be taxed and the stock not, or vice versa? Legislation and judicial decisions are still in considerable confusion in trying to find answers for these questions. If securities are to be directly taxed, the situs must be determined before the taxation of intangibles in the various states can be made equitable. The constitutional restrictions, the eagerness of the state to tax all objects without an understanding of the results, and the unwillingness to give up old practices have been responsible for this situation.

It is now a recognized rule in the United States that real estate should be exclusively taxed where located. With tangible personal property and intangible property the determination of situs is more difficult.¹ The Committee of the National Taxation Association of 1915, which made a detailed study of the decisions affecting situs, has well summarized the problems involved. This summary is quoted at length:

"1. Tangible personal property if permanently located is taxable where located and not elsewhere; if not permanently located elsewhere, it is taxable at the domicile of the owner. (*Union Transit Company vs. Kentucky*, 199 U. S. 194; *Southern Pacific Company vs. Kentucky*, 222 U. S. 63.)

"2. Intangible personal property is subject to taxation at the domicile of its owner. Whether such intangible personal property is subject to taxation at the domicile of its owner when it has acquired an independent situs for taxation in another jurisdiction is uncertain. The current opinion seems to be that it is. The contrary view, however, has been suggested, and it is not impossible that the rule applicable to tangible personal property may be extended to intangible personal property. (Cf. *Hawley vs. Malden*, 232 U. S. 1, 12, *Liverpool, etc., Ins. Co. vs. Orleans Assessors*, 221 U. S. 346, 354.) In the cases in which taxation of such property in two jurisdictions has been

¹In a recent case the court decided that a corporation organized in the state, but having no property in the state, should be taxed. *Grand Forks County vs. Cream of Wheat Company*, 170 N. W. 863.

sustained, the property subject to taxation at the domicile of its owner has been considered to be different from that subject to taxation in the other jurisdiction, *i. e.*, in the case of a mortgage of real estate the debt is subject to taxation at the domicile (*Kirtland vs. Hotchkiss*, 100 U. S. 491); the interest in real estate where the land lies (*Savings Society vs. Multnomah County*, 169 U. S. 421); in the case of shares of stock the shares are subject to taxation at the domicile; the corporate property, where such property is located or where the corporation is incorporated. *Hawley vs. Malden supra*, page 9. Shares of stock may be made subject to taxation in the state of incorporation—*Corry vs. Baltimore*, 196 U. S. 466—whether they may be made subject to taxation both there and at the domicile of the owner, *quaere*. (See *Hawley vs. Malden*, *supra*.)

“3. Intangible personal property may acquire a situs for purposes of taxation independent of the domicile of its owner. The law upon this point must be separately stated for different forms of intangible personal property . . .

“f. State and municipal bonds are subject to taxation in the jurisdiction in which they are permanently located. (See *New Orleans vs. Stempel*, *supra*, p. 322. *Buck vs. Beach*, 206 U. S. 392, 407.) . . .

“h. Bonds, being specialties, are subject to taxation in the jurisdiction in which they are permanently located. (Holmes, J., in *Selliger vs. Kentucky*, 213 U. S. 200, 204.) How far the decision in *State Tax on Foreign Held Bonds*, *supra*, as limited by later decisions establishes the proposition that such bonds are not subject to taxation in the jurisdiction in which the debtor is domiciled is not clear. It is possible that even if an ordinary credit or promissory note is subject to taxation in the jurisdiction in which the debtor is domiciled, a bond—being considered the thing itself—is subject to a different rule. (See *Blackstone vs. Miller*, *supra*, p. 205.)

“i. Mortgages are subject to taxation in the jurisdiction in which the land lies on the theory that the tax is imposed upon the mortgagee's interest in the real estate. (*Savings Society vs. Multnomah County*, *supra*.) So far as has yet been decided, the note or bond secured by such mortgage is subject to the same rules of taxation as an unsecured note or bond. (See *supra* 2 and 3, g and h.)

“j. Corporate stock. Shares of stock in corporations organized under state laws may be given a situs for the purpose of taxation within the state of incorporation. (*Corry vs. Baltimore*, *supra*.) It is undecided whether

under these circumstances such shares of stock may also be taxed at the domicile of the owner.

“k. Shares of stock in national banks are by Federal statute subject to taxation only in the state in which such banks are located.”¹

*Incidence of Taxation of Intangibles (Securities).*²—The one concern to the security holder in studying taxation of intangibles is, who finally pays the tax? A tax may be shifted to another, though the direct payment of the tax by the security holder makes it difficult for him to appreciate this. A little study of the shifting and incidence of taxation soon convinces one of the many possibilities of the shifting of a tax.

The tax upon the security can be levied either on the income or on the property of the corporation or on the principal of the security held. If the tax is on income, the direct tax on the income of the corporation is of as much importance to the security holder as the tax on the income from the stock or bond in his possession. If the tax is a general tax on all forms of income, the tax cannot be shifted from the individual shareholder or unit upon which the tax is levied, as the return from all sources will be affected alike. If the tax is placed upon the income of a selected class of individuals, corporations, or other particular units, or if a general tax is unequally levied, the tax will result in a discount of the market value of the stock. This will be a specific loss to the individual who held the stock before the tax was levied. The purchaser, however, who buys the stock after the levy of the tax, will be given the benefit of the discount of this tax. If the corporation deducts the tax from the interest the result is the same.³

If a general property tax be placed upon a particular kind or group of corporations, and the tax can be shifted to the consumer of the products, or by an increase of rents or interest charge, the result will be the same to the stockholder, as with

¹*Proceedings of National Taxation Association*, 1915, pp. 369-371.

²What logically might seem under this topic to be the conclusion of this chapter—and it might well be read in conclusion—is included here to give the reader a clearer conception of the purpose of the chapter.

³Edwin R. A. Seligman, *Essays on Taxation* (8th ed. 1912), p. 308. Also see Double Taxation.

the partial income tax. The stock will sell at a discount equivalent to the tax. The holders, at the time of the imposition of the tax, are the losers. If the dividends are lowered to meet this tax, the subsequent purchaser is as well off, for the lower market value will mean an equivalent net yield.

The former general practice of corporations, as far as payment at source is concerned, was to assume the payment of the bond tax. With the increase of the Federal income taxes, however, corporations which assume this tax are beginning to limit the amount of the tax that will be assumed. If the corporation pays the normal 2 per cent tax on the bonds, the bondholder then has the right to deduct this tax on the filing of the proper exemption schedule. It has been conclusively shown, as referred to elsewhere, that where the tax cannot be shifted in another way, it will ultimately result in a higher rate being paid by the borrower. This has been conclusively shown in mortgage taxation.

*Exemptions.*¹—With the constant changes in tax laws bearing upon securities and with the adoption of income taxes with their particular exemptions, a careful consideration of tax exempt securities has become of more importance to the investor. So many technicalities and obscure legal points are involved, however, that it is always advisable to secure the advice of an expert. For illustration, when the privilege of exchanging the 3½'s Liberty Loans into the 4's was given, many exchanges

¹The state constitutions of twenty-two states do not permit of either exempting or taxing securities at a lower rate than other property. In three states the right of exemption is doubtful. The remaining states have the right to pass exemptions or lower rates under their constitutions. (*Investment Bankers' Bulletin*, Vol. I, No. 5, Aug. 29, 1913.) Exemption of personal property outside of state: Alabama, California, Connecticut, Indiana, Louisiana, Maine, Missouri, New Jersey, Ohio, Rhode Island, South Carolina, Vermont, and West Virginia exempt personal property from taxation when the property is permanently located in another state and taxed in that state. Exemption of bonds: Eight states, California, Connecticut, Colorado, Massachusetts, Mississippi (if the rate does not exceed 6 per cent), New Jersey, Rhode Island and Wyoming, exempt real estate bonds secured by real estate within the state. All bonds in Michigan, Minnesota (see Recording Tax) and Missouri (specially enumerated) are subject to the special Debt Secured Tax. Iowa, Maryland, and Pennsylvania have a classification for all bonds.

which could have been made with profit by the small purchaser of the $3\frac{1}{2}$'s were not made because of the mistaken notion that the tax would more than offset the increase in interest. It was the taxes applicable to the later Liberty Loan issues which resulted in their greater depression in price than the $3\frac{1}{2}$'s. Of course, had this same original small purchaser of the $3\frac{1}{2}$'s purchased one of the other issues at the point of greatest depreciation, his advantage would have been larger. The problem of switching from tax-exempt municipals to higher yield railroads involves the same kind of problem and must be studied in relation to one's taxable income.

One of the most illuminating experiences showing the effect of tax-exemption privileges is in the trend of the Liberty issues of the United States during 1920. At no time during the entire period of the downward movement of the other Liberty issues which only had partial exemption privileges did the $3\frac{1}{2}$ per cents,¹ which enjoyed full exemptions, show a corresponding fall in price. This issue, because of the effect of the gradual Federal income tax rate, was bought up by the large investors who placed the bonds in their strong boxes. As a consequence, the large resales of the other Liberty issues which depressed the market did not include the $3\frac{1}{2}$ issue. With the rumor, however, in May, 1921, that the Federal income taxes were to be lowered, the Liberty $3\frac{1}{2}$'s settled to new low records. But this is again an illustration of the operation of the same conditions referred to above.

The bonds issued by the Federal Farm Loan system are also privileged to exemption from the Federal income tax. With these farm loan bonds, whose nominal rate is 5 per cent, selling at a price to yield 4.75, this yield to an individual with an income of \$50,000 would be equivalent to a net return of 6.88 per cent from a bond whose income to the individual was subject to the tax.

The advantages to the holder of municipal securities under the exempt privileges were very quickly reflected in the increased market for these securities. The reason for this is seen

¹The $3\frac{3}{4}$'s are also exempt from all taxes with the exception of estate and inheritance taxes.

in the following table which shows the income that a bond, subject to the Federal income tax, must yield to give an income equivalent to that of municipal bonds not subject to this tax:

Individual's Income	Yield of Municipal Bonds Not Subject to Federal Income Tax		
	4%	4½%	5%
	The yield necessary when the income from the bonds to the holder is subject to the tax, to yield the above amounts on municipal tax exempt bonds.		
\$ 10,000	4.49	5.06	5.62
50,000	5.80	6.52	7.25
100,000	9.09	10.23	11.36
500,000	13.79	15.52	17.24

With this variation determined by the amount of the individual's income, the ultimate influence on the price of the securities can only be approximated, unless the conditions of the particular income are known.

The original act of 1913 made a further provision for the so-called normal tax of 1 per cent which could be paid at its source. This rate was increased to 2 per cent under the act of 1918. Under this "tax-free-covenant," certificates are required with the presentation of coupons indicating that the tax has been paid. The effect of the payment or non-payment, theoretically at least, has a corresponding effect on the price of the bond.

To illustrate, first assume that a 5 per cent return is demanded on a \$5,000 bond and the corporation has not paid the full 2 per cent tax demanded; what would be the effect on the price of the bond? The prospective purchaser of the bond would realize first that the tax on the \$250 annual income at 2 per cent will be \$5.00 or that the bond will yield an income of \$245 if he has to pay the tax. If he is unwilling to do this it is necessary to secure the bond at a price which will yield him the 5 per cent and reimburse him for the amount paid out in taxes on his income. This price would be found by finding what sum at 5 per cent is necessary to give \$245. On a \$1,000 bond this return would be \$49 for the year. Then $49 \div .05 = 980$, the price at which the purchaser would have to buy the bond if it is

to yield him a net 5 per cent. The total yield at a price of 980 for the bond would be 5.10 but after deducting .10, the amount of the tax, the net amount to the holder would be 5 per cent. If the corporation paid the tax it would have to pay the .10 on this bond, which added to the 5 per cent paid the investor would be 5.10, the price which it must pay for its money.¹

Capital stock, when held by residents in the state in which the corporation is incorporated, is in a few states tax-exempt. These securities have been advertised by bankers as the most desirable purchases for residents in that state. If this is an actual net-advantage to the resident-purchaser, the argument is for the purchase. The arguments advanced for these non-taxable securities are not always discriminating as to the character of the securities offered. Does the larger net-yield actually arise from the advantage that the particular security possesses over other securities in the same market, or is it due to a difference in the inherent values of the corporation itself? When a market is once cognizant of an advantage or disadvantage, it will always level up these differences in securities of equal grade, though experience has shown that with purely local issues, especially the smaller ones, the advantage of tax-exemption may continue for several years before the market price has fully recognized this influence. On the other hand, the latter qualification raises the whole argument of the relative safety (other things of course being equal) of the small and the large corporate issues as purchases. The requirements of the individual purchaser must determine this.

Where the securities are of equal safety, the comparison between these tax-exempt securities of corporations and tax-exempt state and municipal bonds should not be overlooked. The former are subject to the Federal income tax, while the latter are not, a condition which will give some of the municipal bonds the advantage of a higher net yield. Again the tendency of the market prices in the long run is always to tend to

¹Roy C. Osgood, *The Effects of Taxation on Securities*, *Annals Amer. Acad. of Pol. & Soc. Sci.*, vol. lxxxviii, p. 165. No reference has been made to the Excess Profits Tax (which applies to the income of corporations, or to Preferred Stock) as the latter issues are not primarily discussed in this volume.

level up according to their prospective advantages or disadvantages, so that the purchaser will pay for the privileges accruing to him.

Exemptions from taxes on stocks and bonds have been made by a few states to encourage industry to locate within the states, though the majority of exemptions are for the avoidance of duplication in taxation. The majority of the jurisdictions, however, tax the holder of corporate securities without regard to their location.¹ This frequently results in unjustified double taxation.

Some states, as noted under the low rate plan, effect a compromise by allowing a low rate in the form of a single recording tax or a low annual rate only applicable to intangibles. Judicial decisions in still another group of states have required the state to make exemptions. The change in the courts' attitude on a number of the important points of their decisions has often made these decisions uncertain criteria.² With the exception of the efforts to correct unjust duplicate taxation, direct exemptions for corporation securities are on the decrease.

The difficulty of the problem of taxing securities of foreign corporations held by residents continues, because of the inability to agree upon the situs. But where exemptions of the securities of corporations of other states are made, there is considerable difference in procedure among the states. A few states exempt investors' share-holdings in foreign corporations when they are taxed in the state in which the company is organized.³ Massachusetts under its old law, existing since 1836, made a distinction between domestic and foreign shareholders, exempting the former and taxing the holders of foreign shares. Real estate mortgages and the capital stock of manufacturing corporations are the securities which are most commonly exempted.

¹Exemptions must be studied in close conjunction with situs and Double Taxation. Also see excerpts from state constitutions and statutes for exemptions.

²A study of the Louisiana cases is particularly instructive in this connection.

³This general rule is accepted either by statute or decision in California, Connecticut, Louisiana, New Hampshire, New Jersey, New York, Rhode Island and Vermont. (See also footnote on Real Estate Mortgages.)

As corporate loans are not often directly taxed, the problems of special exemptions are, accordingly, less frequent. When direct taxation of both the corporation and its bonds is practiced, the subject is controversial, and Professor Seligman maintains that "so soon as the taxation of corporate loans becomes as general as is now, the taxation of corporate stock, we shall be confronted with precisely the same difficulties."¹ (This does not, of course, refer to the income tax.)

The exemption of municipals is more consequential than that of any other class of securities, and is especially important since the adoption of the income taxes. This includes the bonds of the United States, except those previously specified as exempt, territories, insular possessions, municipalities of territories and states, and all subdivisions of the state where so designated by the state constitution or statute. The exemption of territorial issues has been debated. Attorney Frederick N. Judson draws the conclusion that "it was contended that Congress had no power to declare this exemption. But the Circuit Court of Appeals (6th Cir.) held, . . . 'That where Congress lawfully directs the issue of evidence of indebtedness in the exercise of any power derived by it from the Constitution . . . such evidence of debt are exempt from state taxation, or at least may be exempted therefrom, if Congress sees fit to give them this quality.'"²

In the states which allow tax exemption of their own issues and those of their subdivisions, the outstanding factor is the recent date of the extension of this privilege. Only five states out of the list given below allow entire exemption of all issues.³

¹Edwin R. A. Seligman, *Essays on Taxation* (1912), p. 308.

²Frederick N. Judson, *A Treatise on the Power of Taxation* (1917), p. 17. See other leading cases cited in this chapter. *McCulloch vs. Maryland* (4 Wheaton 316, 4 L. Ed. 579); *Osborn vs. United States* (9 Wheaton 738, 6 L. Ed. 204); *Weston vs. Charleston* (2 Peters, 450, 7 L. Ed. 481); *Grether vs. Wright* (23 C. C. A. 498, 75 Fed. 742, 1896); *Farmers & M. Savings Bank vs. Minnesota* (232 U. S. 516, 58 L. Ed. 706; 1914), etc.

³Of the Civil Obligations all bonds or certificates issued prior to the European war of 1914 are "exempt from the payment of taxes or duties of the United States as well as from taxation in any form by or under state, municipal or local authority." (See also 2 Peters 450, 7 L. Ed. 481.) They are not exempt from Federal estate taxes. The principal of all obligations issued during the War is exempt, as well as

If the rate of increase in exemptions of the last ten years continues, a very large share of all issues outstanding will be exempted in another decade. Consequently, as municipals bonds are not subject to the Federal Income Tax, it will result in a relative lowering of the rates of these issues as compared to those of the best secured private corporations. While first the advocacy and then the adoption of the income taxation have hastened this action, already considerable agitation is being made against any form of exemption.

the income from the First Liberty Loan 3½'s. On all other war issues the income from an aggregate of \$5,000 is exempt from taxes. Other special exemptions are allowed in each issue for which it is necessary to consult the statute.

The insular, territorial, and territorial municipal bonds are also exempted, though there has been considerable contention over the latter. (*Grether vs. Wright*, 23 C. C. A. 498, 75 Fed. 742, 1896.)

Federal Stock Land Banks and Federal Land Banks bonds have been exempted by special act of Congress.

Of the states, the following exempt practically all of the issues of the state and its divisions (The date following indicates the date from which the exemption applied. Because of limit of space, statutes are not given): Alabama (1911); Arizona (1912, and by decision of territorial and territorial municipal issues); California (1902); Connecticut (1917); Delaware (see *Chronical* Jan. 29, 1919, p. 108); Georgia (last decision 1907); Indiana (1903); Iowa (1909); Kansas (1909); Kentucky (1915); Louisiana (see *Chronicle*, June 29, 1919, p. 147); Maine (1909); Maryland (1914); Massachusetts (1908); Michigan (1909); Minnesota (1911); New Jersey (1893); New Mexico (same as Arizona); New York (1908); Utah (Special ruling, no special statute); Washington (1907); Wisconsin (1911); Wyoming (1905).

BOOK II

CORPORATION BONDS

CHAPTER XIV

RAILROAD BONDS: PHYSICAL FACTORS, TRAFFIC STATISTICS, AND REGULATIONS

*Traffic Determinates.*¹—The character of the traffic of a railroad is determined largely by its geographical location. In the United States this has been peculiarly true because of the great expanse of territory, which has meant both a wide range in the character of traffic and a considerable percentage of long hauls. It is the latter peculiarity which makes any financial comparison with the European railroads almost impossible. The first requirement, therefore, in any analysis of railroad securities is a careful examination of a railroad's location, the character and the permanency of the resources, the existing and potential possibilities of production in the territory, and the location and character of its terminal facilities. It is to an analysis of these physical factors that this chapter is devoted. Earnings, maintenance, operating expense, etc., which must be studied in close conjunction with this problem are treated in the following chapter.

If one or more large terminal cities are tapped, they provide both a direct market and the opportunity of reshipments for an exchange of long haul traffic with other railroads. The Chicago, Peoria, and St. Louis, one of the old railroads of the Middle West, is a striking illustration of a railroad which has been handicapped, among other things, by the character of its two terminal cities. These two cities have very little to exchange with each other. Also a railroad which does not take a considerable ratio of its traffic from one end of the line to, or nearly to the market at the other end of the line, is necessarily

¹The reader should hold in mind in the reading of this chapter that the author has not attempted to cover the factors entering into earnings, operating expenses, maintenance, etc., in this chapter. These are analyzed in Chapter xvi. The first part of this chapter is entirely devoted to the physical aspects of the railroad.

a failure. This road also has the disadvantage of heavy grades. The Wabash¹ railroad has suffered losses in traffic because its eastern terminus is located in Buffalo instead of some Atlantic seaboard city. The Western Maryland Railway which was deprived of the transshipment from the Coal and Coke Railway when the latter was purchased by the Baltimore and Ohio Railroad and the Toledo, St. Louis and Western are also illustrations of systems more or less "bottled up" so far as securing transshipment is concerned. Both of these systems are consequently largely dependent upon local traffic.²

For a comparative analysis, a thorough understanding of the amount and sources of traffic, and the physical influences upon it is imperative. It is not until these conditions are understood that one escapes the danger of making misleading comparisons. Comparisons of companies are of inestimable worth in obtaining a correct idea of railway properties, but unless the bases of these comparisons are sound, the subsequent comparisons based upon them are futile.

Land contours have often determined the survey of a railroad's mileage. For example, a very considerable part of the Atchison's right of way through the western mountain range follows an old buffalo trail, which these beasts of the prairie selected as the easiest trail across the mountains.³ In the major part of its mileage between Cheyenne and Ogden, the Union Pacific possesses a decided operating advantage over the Denver and Rio Grande, the greater part of whose mileage is over higher mountain levels. The New York Central Lines with practically a "water-level-route" from New York to Chicago have always had a decided operating advantage over the Pennsylvania, and Baltimore and Ohio railroads, which cross the

¹*Interstate Commerce Commission Reports*, vol. xlviii, The Wabash Terminal Investigation (December 17, 1917), pp. 96-200. The entire report rather than the specific reference is given here because the whole episode is needed to obtain a correct understanding of the case.

²*I. C. C. Reports*, vol. xlv, in *Re Pere Marquette Railroad Company and Cincinnati Hamilton and Dayton Railway Company* (March 13, 1917), pp. 1-223. What has been said of the previous reference also applies here.

³Numerous other illustrations of a similar character are to be found in Clark's *American Highways*.

Allegheny Mountains. Engineering skill is surmounting many topographical obstacles, and effecting lower operating costs, though these advantages are normally procured only by larger fixed investments.

But even more emphasis should be placed upon the advantage of low grades. Very few people realize that with each additional one per cent grade (52 foot rise per mile) the possible train load is cut in two. The roads which have been the most successful are, practically without exception, those which either held originally the lowest grades or which have since spent large sums to attain them.

Neither is it any mere accident that the great majority of the railroads in the United States run in an easterly and westerly direction. The large industrial and commercial ports of the eastern and western states which originally established markets for the mineral and agricultural products of the interior, created this longitudinal movement of traffic which still continues. However, with the recent establishment of such industrial centers as Birmingham, South Chicago, and Gary, an increasing amount of traffic has been moving north and south. It is not unlikely that this newer movement of traffic will in time fully come into its own and fulfill the prediction made for it ten to fifteen years ago. As far as the Southwest, as distinct from the "Old South" east of the Mississippi, is concerned, there are at the present time too many railroads, *i. e.*, transportation facilities have increased faster than traffic, though this territory is rapidly developing up to its railroad capacity. The difficulties experienced by the Rock Island between 1902 and 1915 were due partly to the result of a lack of traffic¹ on its mileage west of the Missouri River. Every other road in the Southwest—except the Atchison and South-

¹*Railroad Age Gazette*, vol. lviii, No. 15 (April 9, 1915), pp. 774-776. Also see other editorials of this same year. It should, however, be noted that in addition to the above conditions mentioned other roads were physically in better condition and also had better terminals and connections. The underlying trouble with the Rock Island prior to its receivership was that it continued the policies established under the Cable management of not modernizing its plant. While roads like the Northwestern were cutting down grades and improving their road-beds, the Rock Island made few improvements.

ern Pacific, which must not be considered in this group, as they are not governed by these more local influences—has suffered from a shortage of traffic, *i. e.*, relative to systems in eastern territory.

The “promoter viewpoint,” as well as that of the general market in 1900-1902, concerning the future development of this territory was overly optimistic. The general opinion in 1902 was that the grain movement east and the commodity movement west, which had made paying roads of the Chicago, Milwaukee & St. Paul, the Northwestern, and the Chicago, Burlington & Quincy, could be partially diverted to the gulf ports. Up to date the diversion of this traffic to these ports has fallen far short of original estimates, as it has continued largely in its old channels. This emphasizes the fundamental importance, in the consideration of any railroad, of determining whether the territory through which the railroad passes is only in the process of development or has been long established, whether all of its traffic is seasonal, and whether there is danger of its exhaustion. The shorter the railroad mileage or the more dependent it is on the traffic of one product,¹ the relatively more important it is to have a favorable answer to these questions. The longer the mileage, the less is the risk of its dependence on one commodity, as in the case of the coal roads.

Fertility and climate, especially rainfall, which is the result of geographic influences, are the physical factors that fix the limitations of agricultural production. As density of population can only increase to the production capacity of a given area, the amount of traffic which can be created in this area is determined by the productive capacity and the rapidity with which the given territory is developed. Likewise, productivity of timber and mining areas determines the extent to which the earnings of railroads tapping these areas may be developed. When a natural resource, as the timber of a locality, is nearing depletion or has been exhausted, other sources of traffic must be developed to offset it. If this has not been possible, the rail-

¹An occasional exception exists, such as the sudden development of traffic on the Texas and Pacific Railway due to the opening up of the Burkburnett oil fields.

road dependent upon this traffic must seriously suffer. Both the Ann Arbor and Pere Marquette,¹ for example, have had unfortunate experiences since the exhaustion of the large commercial timber supply of northern Michigan.

If the United States or any particular group of states should undertake an extensive expansion of the inland waterway systems, it might prove a serious competition to certain railroads. As the heavier and cheaper products, where possible, are usually carried by water, the roads which are the heaviest carriers of bulky commodities in the locality of this competition would suffer most. But it is more than likely that with the development of these areas, this lost traffic would be more than replaced with high grade commodities, the carriage of which would be left to the railroads. Except for the Great Lakes traffic, a very small proportion of the domestic traffic in the United States has been transported by water, even the major portion of the bulky commodities being transported by railroads. This is indicated by the fact that mineral products furnish 55 per cent of the total rail traffic.

Mileage.—A long mileage usually gives a railroad both the long haul and the diversity of traffic which increases the stability of its earning power. The length of mileage is also, as in all railroad statistics, relative, and must be studied not as an isolated factor, but in conjunction with the territory traversed, and the amount, character, and density of traffic. For example, a few years ago, the Gulf and Ship Island Railroad, which was solely dependent upon the timber industry, found itself in strained circumstances with the slump of the lumber market, while the St. Louis and Southwestern which has a part of its mileage in this territory, scarcely felt the strain, as lumber constituted only a small part of its large and diversified traffic.²

Extra main line trackage in a railroad system indicates increased utilization of the system. Railroad engineers estimate that the carrying capacity of a railroad is increased by double

¹*I. C. C. Reports*, vol. xliv (Pere Marquette Case).

²John Moody, *How to Analyze Railroad Reports* (1912), p. 43.

tracking from $2\frac{1}{2}$ to 5 times. This large variation is due to the line of business handled and speed of trains. Considerable difference, for example, will result if a number of varying speeds for trains are used, and likewise each additional passenger train on a busy line makes a heavy inroad into the road's freight carrying capacity. Individual rules for studying the effect of extra trackage, consequently, must be established for each system. These can be obtained from a comparative study of the railroad's reports over several years. For example, railroads with single trackage have shown as great a density in traffic as systems with an entire mileage double tracked. For general comparative purposes the measurement of railroad traffic on the basis of the single track, with an approximation of increased density for additional trackage, would be more accurate than a straight measurement of total trackage. The financial statistician of the banking house which underwrites railroad securities, must, of course, make these computations with even greater accuracy. He must establish his rule for each individual system after a consideration of the effect of the character of the traffic, the ratio of short and long hauls, origination of business, and the density of traffic. He or his advisers should also have detailed maps of profiles, grades, etc., which here are all essential for an accurate analysis. Advisers, here, refer to engineers, upon whom the banker practically always depends for these latter details.

Formerly the weight of rails was an important consideration, but the rapidly increasing adoption of heavy equipment¹ has forced the general adoption of heavy rails by all the important trunk-line systems. The exception will be found in the very short road or in branches of trunk-line systems, which do not need the heavier rails because of the lighter traffic. The same conditions would also apply in bridge construction, grades, etc.

Equipment.—As cars and engines are the movable equipment that make the operation of the railroad possible, a consideration of their condition is of the utmost importance. Every

¹The Chesapeake and Ohio Railway has had the unique experience of being forced to keep down the size of its equipment on account of its tunnels.

railroad report should show the exact condition and service ability of the equipment, as far as a detailed financial statement can, for the lack of a proper maintenance of equipment, may necessitate a sudden and large expenditure that may prove embarrassing. For example, when the Rock Island Company obtained control of the Chicago & Alton Railroad (control which was later given up) it was found necessary to secure at once a large amount of equipment, though both roads were hard pressed for funds. A complete report should show the number, age, size, character of construction, and capacity of cars, and weight and tractive power of engines, together with a list of current additions and retirements. As the change from wooden to steel cars is still under way, and the capacity and durability of cars, as well as the tractive power of engines, have so greatly increased, the enumeration of equipment entails more than a mere classification. Comparison of equipment on a per mileage basis, a method often used, may be entirely misleading (although such a comparison may safely and with benefit be made by the technical statistician) unless considered in connection with various other factors. For ordinary purposes, a comparison of the yearly growth and character of the equipment will reveal sufficient information as to both its present state and the tendencies in the policies of management, in regard to equipment.

A separation should also be made between equipment owned without encumbrance and equipment owned subject to the claims of equipment bonds or trust certificates. The latter method of controlling equipment is common and necessary, as it is essential to know the property in fee behind the general claims of the company. This problem is discussed in a subsequent chapter.

A complete physical equipment report will give a good deal of valuable information concerning the policy of the operating management though these facts cannot be procured from the annual reports of railroads. A comparison of the number of either passenger or freight cars with the density of traffic and the earnings will show how effectively equipment is being utilized. The class of rolling stock, together with the character

of traffic, will assist in determining the number of empty cars that must be returned in the back haul, a factor directly affecting operating costs. In this same connection car interchange becomes so important that the "hire-of-equipment balance" may be as important as the railroads own facilities.

The efficiency in operation is also determined by the number and kind of cars that can be accumulated at any point along the line to meet the demand of a particular kind of traffic. Efficiency also might be affected, by the capacity of the cars—for example, by the use of the old small wooden coal car instead of the large steel car; but greater standardization has almost entirely eliminated the necessity of considering this factor, which formerly could not be omitted. But as stated above, these facts are not available in the public reports.

Rolling stock equipment depreciates so rapidly that its condition readily reflects the thoroughness of a railroad's management. Maintenance of equipment, which is an ever-present problem, is one of the items which can be neglected temporarily, at least, under pressure. The Rock Island and Missouri Pacific systems, prior to their last receiverships, made such large sacrifices in their maintenance accounts that the problem of rehabilitation following receivership was extraordinary. If the policy of keeping the equipment in a merely usable condition is followed through a long continued pressure of financial embarrassment, however, a general impaired efficiency will soon show itself.

The advantage of the steel freight cars in greater durability and lower maintenance is partly offset by the greater tractive power needed for hauling the heavier cars, unless the carload has been more than proportionately increased and the "empties" in the back haul have been reduced to a minimum. In steel passenger cars, where the weight of the passenger is a small percentage of the weight of the car, full capacity is necessary to insure profits. What is probably the most accurate measurement of the railroad's equipment efficiency is the tractive power of its locomotive, *i. e.*, the pulling force of the engine.¹

¹M. L. Byers, *Economics of Railway Operation* (1908). This author will give the reader an appreciation of the technical problems of railroad operation as related to financing.

As applied to each railroad system, the measurement should be made on the basis of both tractive power and adaptability of the engine to the particular needs of the system. Where, for example, very dense traffic exists, the Mallet type of engine is the most economical. The Mallet engine, on the other hand, is an expensive luxury where freight traffic density is light.

Passenger and Freight Traffic.—The major part of the income of the railroads in the United States is from freight. Passenger traffic, being limited in amount and requiring more costly equipment, has never been a very profitable source of income. There are a few notable exceptions to this generality, such as the New York, New Haven and Hartford, which has a considerable revenue from its suburban traffic, but this is the exception and not the rule for railroads in the United States. The Long Island at the one extreme has led all railroads in the country in its proportion of passenger traffic income, its total income from this source in some years being 70 per cent. At the other extreme we find the Pittsburgh and Lake Erie, with an approximate passenger traffic income of 10 per cent. The approximate average income for railroads in the United States is 30 per cent from passenger and 70 per cent from freight traffic. A knowledge of the diverse character and distribution of railroad traffic is necessary. First, it enables one to judge the importance of any changes taking place in the traffic over a period of years. Secondly, it gives a check on the relationship of railroad rates to the total income and the character of traffic, and their respective influences on the amount of income. Thirdly, the stability or the change of the freight traffic over a period of years can be ascertained. If the diversity of freight traffic is increasing, and both an absolute and proportionate increase of passenger traffic to freight traffic is taking place, the railroad will normally show stability of earnings. On the other hand, some of our most profitable railroads are the one class traffic railroads; such as the iron ore carriers of the Lake Superior ports.¹ The second most profitable lines are the anthracite coal carriers, which carry a large amount of freight but are

¹Examples: Duluth, Missabe & Northern and Duluth & Iron Range.

constantly endeavoring to increase their anthracite freight.¹ There are also other roads, approximately 75 per cent or more of whose traffic consists in the carrying of bituminous coal.² Even some of the big trunk lines³ have at least 50 per cent of their traffic in coal. All of these cases are again striking examples of the futility of attempting to analyze a single factor outside of its own environs. Large coal carrying roads are an important exception to the general assumption of diversity. A preponderance of over 80 per cent, for example, of grain traffic would not have the same results and would eventually prove costly. A study then of diversity, must also include the character of the traffic, as well as all the general conditions under which this traffic is being handled.

The analysis of traffic has been greatly facilitated by the uniform classification required by the Interstate Commerce Commission.⁴ The general classes are Products of Agriculture, Products of Animals, Products of Forests, Manufactures, Merchandise, and Miscellaneous. Too much emphasis must not be placed upon the ratios of these products until the sub-classifications have been checked, for a preponderance of one commodity in the classifications would make a decided difference in the comparisons. For example, dressed meats and all of the by-products of the animal are included under the general classification of Products of Animals. If a railroad has a very much larger ratio of dressed meat-product-traffic than another road, it would have a very much larger total income, even though the total ratio and the absolute tonnage of Animal Products were the same for both railroads. Under the items of the respective classifications there is also considerable variation as to the commodities which lend themselves to carload shipments and those which lend themselves to shipments in partial car load lots.

Traffic Density.—Efficiency in operation of any corporation

¹Examples: Delaware, Lackawanna & Western, Lehigh Valley and Central Railroad of New Jersey.

²Examples: Norfolk and Western, Hocking Valley, Virginia Railroad.

³Pennsylvania and Baltimore & Ohio.

⁴Since 1907 when all railroads accounts were standardized, operation of railroads can be compared to better advantage in every respect; but even then, as no two cases are alike, a comparison not recognizing the underlying and dominant conditions is worthless.

means the intensity with which the plant is utilized. The total result attained by a corporation has little significance unless considered in relation to the size of the plant and the extent to which the plant is intensively operated. These are among the very first things asked about by the average man considering an industrial security. Yet the same man will pass them over as irrelevant factors in determining the weakness or strength of a railroad system. The facts of operating utilization, however, give him the concrete evidence of the significance of the gross and net income and maintenance accounts of the railroad. This utilization of the plant in railroads is called the density of traffic.

The density of the freight traffic of a railroad is obtained by dividing the number of tons carried one mile by the miles of railroad operated. In procuring the passenger density, the same method is used, except that the total number of passengers carried one mile is substituted for tons carried one mile. The measurement is here again reduced to a unit in order to give a basis for comparison with other roads.

All analyses of the density of traffic must be compared with the mileage operated and with the character of traffic carried. If the mileage of a railroad should be increased and the traffic density decreased, it would have decreased in efficiency of operation. If it increased its density at the same rate as its mileage, it would only be holding its own. But an increase of density at a faster rate than the increase in mileage would probably indicate that the additional amount and character of traffic brought into existence by the increased mileage made greater density possible. By this it must not be inferred that efficiency rests only on density. It also depends on car loading, utilization of car time, increased mileage per car per day, improved methods of handling cars, motive power, etc.

The general tendency for railroads showing an increase in gross revenue is to show an increase in density of traffic, though a shift to a different class of traffic may result in a higher income without a corresponding change in the density of traffic. Shifting the rates on the same class of traffic would also have the same effect upon the gross income. The railroad which does

increase in both mileage and density is, of course, in a stronger position than the one which increases in mileage and not in density. A growth in mileage, however, may take place without an increase in density, where the maximum density of traffic to the mileage has been approached in a particular locality. This would mean that the operating manager's efforts would have decided limitations.

To insure the same income, a railroad with a heavy class of tonnage must necessarily have a greater density of traffic than the railroad with a higher class of traffic, as the rates of the former are lower. Consequently, a mere listing of freight density without the qualifications emphasized in this chapter under the topic of the "Trainload and Carload," may be misleading.

If the difference in the character of the traffic is too marked, a comparison of results with other railroads is for all practical purposes a sufficiently accurate basis, from which to draw conclusions. With equal mileage and a greater density in traffic of railroad "A" over railroad "B," the former must operate more frequent trains (See Train Frequency and Speed) with greater tonnage and a smaller ratio of "empties." This is the same principle as that used in determining the effectiveness of the operation of an industrial plant. It means merely the most effective utilization of the plant.

Trainload and Carload.—The trainload and carload are also valuable indices of the efficiency of the operating department. The trainload is the average number of tons of freight (revenue freight; company's business must be eliminated) carried per train per mile for the year. As translated into earnings in the following chapter (XV), the result of this is shown in the amount earned per mile run by each freight train or passenger train. This is the crux of the whole proposition from an earning point of view. In carload statistics the carload unit is a smaller division than the trainload, giving a smaller unit for comparison. If the trainload is not given in the railroad report, it is easily obtained by dividing the number of tons of freight carried one mile by the train mileage. While the increase of both trainload and carload indicates a growth in

traffic or better utilization of the railroad—generally both—neither trainload nor carload can be analyzed apart from the topography of the country traversed by the railroad, or the character of traffic. Efficiency in operation of a particular system must be judged not on the basis of any general unit of train or carload, but in relation to its own locality and character of traffic. It would be meaningless, for example, to make a comparison of the Chesapeake and Ohio, chiefly a coal-carrying road, with the Chicago, Burlington and Quincy, principally a grain-carrying road.

Where more than one engine is used on a heavy train, a good check upon the trainload, and an even more accurate, but technical analysis, would be the consideration of the additional factor of engine mileage. For a road that is constantly compelled to use more than one locomotive on heavy trains, as with the Denver and Rio Grande, the importance of the trainload unit is destroyed, the relation of the trainload to the operating cost being decidedly changed. Railroads with the same character of traffic and length of mileage may differ in trainloads, because of a difference in topography of the country traversed by their tracks, which skill in management cannot always overcome. Where this handicap exists, allowances must be made for it, as inefficiency of management cannot be held accountable.

In order to secure this maximum efficiency in the hauling of freight and passenger cars, the manager must attempt both to load the cars to their capacity and so route them that the length of haul for empties to the available points of traffic will be reduced to a minimum. While the traffic manager may succeed in loading his cars effectively, the statistical results obtained by measurement of the carload will have the same shortcomings as a measurement of the trainload. A wide variation in the types of cars and in their capacity for traffic would impair the result. The same is true of a difference in the kinds of traffic; for example, a carload of high grade cloth would be more valuable than a carload of pig iron. But again, with a long mileage and diversity of traffic, these difficulties offset each other, and the general average will be a fairly good index.

One of the serious problems in the earlier development of

the Western trunk lines was securing a sufficient back haul to reduce the large number of empties. Traffic was taken on the narrowest margins, though it did not yield the system a legitimate profit, for the cost of engineers, trainmen, coal, and wear and tear of properties continued in almost the same proportion with the hauling of empties, as with the carrying of traffic. Where a large interchange of traffic can be secured by a trunk line through transfer points, like Chicago, the problem of the operating department is considerably simplified, as both a large amount of long haul traffic and an effective loading of trains are secured. Where there are decided limitations as to the amount of traffic that can be secured, though effectively handled, a railroad can never expect to make more than a limited showing. The quantity of traffic, the character of the traffic, the distance of the haul, and the topography of mileage will always create decided limitations beyond which the operating department, be it ever so efficient, cannot go. This is a fact too often not taken into account in a consideration of railroad rates.

Where the tonnage has not increased with the growing demand for more frequent service, the increased frequency of service on a smaller system will check the development of the trainload and carload. The shipper is constantly calling for a "hurry up" in shipments, which may be entirely opposed to the policy of the operating department necessary to securing the greatest efficiency. It does not necessarily follow, however, that heavy trains and slow speed always mean efficiency, for partial loads with more frequent service, have, with the elimination of long delays, often proved the more profitable. The type of topography, traffic, and climatic conditions, must determine and will limit the schedules of service the railroad manager can establish to secure the largest returns in income.

Terminals.—Efficiency of train operations outside of city limits has too frequently been discounted by the lack of terminals or inadequate and costly methods of handling freight within the city limits. A railroad must have good terminal facilities in the heart of the city; otherwise it will fail in its competition in securing traffic. The importance of this factor is reflected in the large investments made in terminals.

A few systems are now paying large prices for terminal facilities;¹ an outlay which might have been at least somewhat reduced, had their managements anticipated the future development of the systems. If a subsidiary terminal is owned by a railroad or a group of railroads, the payment of leases is of relatively small concern, but if the rentals are paid to a small group of individuals, who own the subsidiary, these leases may, though legitimate, be a very high tax upon income. In order to obtain a correct estimate, the long period in which this property has been held until its present value has been reached, with the cost of the investment for the period, must be pitted against the cost of the rentals at present. The more costly result to the railroads has been the exorbitant prices they have often had to pay for additional terminal properties to meet the necessities of expansion. Inadequate facilities are likely to be even more costly than high-priced terminal facilities. If a railroad has terminal facilities equivalent to only seventy-five per cent of its traffic, it must constantly be under strain because its rolling equipment will be tied up by the delays caused in unloading. There is no means of measuring statistically the value of either the terminal or terminal properties, but the gain, as a whole, is overwhelmingly conclusive. And it is in this total influence rather than any attempt at unit analysis, that both the terminal and terminal properties must be considered.

It is quite likely that in the relatively near future Congress and the Inter-State Commerce Commission will require the terminals to be used jointly. When this occurs, the situation stated above will have no bearing, and the terminal question will be wholly analyzed from the standpoint of traffic which can be secured or interchanged in the particular terminal city or cities.

Regulation and Control.—Since 1887 government regulation

¹The Chicago Great Western and the Pere Marquette (*I. C. C.*) vol. xlv, which have paid a heavy charge for some of their rights of way and terminal facilities, are good illustrations of this. The vast sums spent by the Wabash in securing a terminal in Pittsburgh, despite the ill-advised move in this case, shows the importance attached to the terminals.

has steadily increased. So important has government control become over all classes of public utilities that the investor can no longer disregard the influence of this control on his investment. But while large advantages to the investor have grown out of some of this control, other features have proved a handicap. Then, too, the slowness with which government action responds to a needed change, even where the power to inaugurate it is already possessed under existing statutes, is in need of correction. The difficulty of dealing with the problem of utility control is reflected in the many legislative changes which are constantly taking place. These changes frequently nullify a previously made analysis. A brief record, however, of the development of railroad regulation seems worth while in so far as it may throw light on its future trend and influence on security values.

Under the Act of 1887¹ which created the Interstate Commerce Commission, the power of this body was largely confined to the hearing of cases on discrimination. This power was gradually extended through amendments,² and in 1906,³ the power was extended from the mere setting aside of unjust rates to the power of fixing new rates. The amendment of 1910⁴ gave the Commission the further power of acting upon its own initiative in suspending any change in rates pending a hearing. The power vested in the Commission to suspend rates has met with rather bitter criticism on the part of the railroads. Two more recent amendments have effected even more drastic changes. These acts are commonly known as the Valuation Act of 1913 and the Transportation Act of 1920.⁵ Without question further amendments will follow very soon, changing certain features of these last two amendments as well as adding to them.

¹U. S. Act Approved February 4, 1887. (24 Stat. L. 379.)

²Amendments to Act of 1887 to date were as follows: March 2, 1889 (25 Stat. L. 855); February 10, 1891 (26 Stat. L. 743); February 8, 1895 (28 Stat. L. 643); June 29, 1906 (34 Stat. L. 584); June 30, 1906 (34 Stat. L. 838); April 13, 1908 (35 Stat. L. 60); February 25, 1909 (35 Stat. L. 648); June 18, 1910 (36 Stat. L. 539); August 24, 1912 (37 Stat. L. 566); March 1, 1913 (37 Stat. L. 701); and Feb. 1920.

³Act of June 30, 1906 (34 Stat. L. 838).

⁴Act of June 18, 1910 (36 Stat. L. 539).

⁵Transportation Act of Feb. 28, 1920 (commonly known as the Cummings and Esch Bill).

In addition to the regulation by the Federal government, forty-eight states have passed regulations in varying forms. Much of this state legislation is open to severe criticism. Many of these laws have been passed under the stimulus of a fad passing over the country. As a consequence, state legislatures have often failed to study fully the economic effects of much of this legislation. As a result, a good deal of confusion exists between the control exercised over a trunk-line mileage within the state and the control over its mileage as a transcontinental system. This confusion in security issues has already been emphasized in the chapter on the Regulation of Security Issues.¹ The solution of these difficulties would seem to rest in the complete control by the Federal government of all railroad regulation.

The recognition of the right of Federal jurisdiction over that of the state has already been strongly advanced by the development in the United States Court decisions. This development is clearly defined in a comparison of the so-called Granger Cases² and the Shreveport Rate Case.³ In the earlier cases, the courts were both in doubt as to their jurisdiction and in the interim have been attempting to find their own ground. But in the Minnesota Rate Case,⁴ the emphasis would seem to have been laid on the state's exercise of power over Federal rates, while in the Shreveport Case, where interstate rates had already been established, the Federal control was recognized over that of the state.

As the investor is, of course, primarily concerned with the amount and stability of his return, this is the particular phase of the problem in which he is interested. And as income is dependent upon the rates which can be charged, the two other questions of direct bearing, outside of any specific limit which may be placed upon the rate charged, are: What rates can be charged for service, and what is the base upon which rates are charged? That is, are rates to be placed upon the physical value of the

¹Chapter XII. Regulation of Security Issues.

²A leading case deserving of much study is the case of *Munn vs. Illinois* (94 U. S. 113, 24 L. Ed. 72).

³*Houston, East & West Texas Railway, et al. vs. United States, et al.*, 234 U. S. 342 (1914).

⁴*Shepard vs. No. Pac. Ry. Co.*, 184 Fed. 765 (1911).

property, the total capitalization, the actual investment, cost-of-service, or some other base?

When the question of rates first came before the courts, as already intimated, they were uncertain of their jurisdiction. As Harleigh H. Hartman states: "The courts were unwilling to consider rate-making except as an exercise of the police power. They declined to classify it as condemnation of the service. A sort of hybrid theory of regulation resulted, which holds that the State, in the exercise of its police power, may limit the return to prevent the utility from appropriating the interest of the public, but cannot take the service without paying the utility what it is really worth. When such a point in rate-making is reached, the power of eminent domain, not the police power, is enforced, and the due process of the Fourteenth Amendment is lacking if compensation is neglected. The equal protection of the law is denied the utilities because other business is not subject to such confiscation. The right of the judiciary to intervene and enforce the constitutional safeguards of property was established."¹

With this advancement of its control, the courts were forced to adopt a base upon which the rate would be placed as well as a definition of what that base should be. "The Court," as the same author again states, "hesitated to adopt valuation, but finally took the step. Having done so, it realized the opportunity for injury to the public welfare which rate-making sought to protect and hastened to place conditions upon valuation."² In the earlier cases of the Supreme Court, this step was not taken.³ In the development of its principles of fair valuation, the Supreme Court also failed either to lay down very clear distinctions or give a very comprehensive interpretation of fair value, though marked progress must be admitted.

The closer knitting of the two problems of rate and valuation is also evident in a study of court decisions. And as these decisions must control, both their interpretation and trend

¹Harleigh H. Hartman, *Fair Value*, 1920, p. 75. See also Homer Bews Vanderblue, *Railroad Valuation* (1917), p. 11.

²Harleigh H. Hartman, *Fair Value*, p. 75.

³Homer Bews Vanderblue, *Railroad Valuation* (1917), Chapter I, pp. 1-27.

should be known. An analysis of the cases themselves can best give this.¹ However, whatever the method of valuation² may be, the rate of return must be commensurate with the risk involved. To this extent every public utility property is an individual problem.

However, in the supposed reduction of risks to the minimum because of the monopolistic character of the business, the conclusion which has frequently been followed is that a fixed rate should be established and everything else fixed and adjusted to it. Fortunately, legislatures and commissions, owing to the sudden shift in prices during the War, were forced to recognize the fallacy of this long and commonly accepted principle in franchises. What proved to be almost a calamity to many public utilities may prove to be their ultimate salvation. For without question, this unfortunate situation forced recognition of the absurdity of a fixed rate, and has materially hastened a change in attitude of those administering government regulation as well as the character of new legislation. This is clearly demonstrated in the Federal Transportation Act of 1920.

Out of the agitation for a fair adjustment of rates in and out of Congress together with the opinion of a minority that railroads were grossly over-capitalized, a statute was passed providing for a valuation of all railroads in the United States.³ In another two years from this writing, or probably less, the final results of this valuation should be complete. The preliminary results announced by the Commission on July 1, 1920, as of December 31, 1918, gave the investment value of the railroads of the United States at \$18,084,934,000 which is in excess of the book value carried by the railroads by \$875,000,000. Contrary to the belief of some, that railroad valuation would generally show large over-valuation, decidedly the opposite proves to be the case. A few exceptions, needless to say, exist. A very close relation between book values and property valua-

¹See previous suggestions of texts on Valuation in Chapter xii on Regulation of Security Issues.

²See Chapter xii.

³Amendment to Interstate Commerce Act, March 1, 1913 (37 Stat. L. 701).

tion was also shown in the early valuations of Michigan, Minnesota, South Dakota, and Washington. But even after a valuation has been accomplished, if rates are to be allowed that will insure a just return, the rate applied to a particular railroad must be to a large extent, at least, an individual problem. The impossibility of fixing rates in this fashion without discriminating against cities is apparent. And no doubt, the framers of the 1920 Act recognized this in the provisions made for consolidations.

As a result of the chaos resulting from war operation and the increased costs of operation, the Transportation Act of 1920 was passed. Of a certainty, the valuation of railways by the Interstate Commerce Commission with the passage of the 1920 law, now assumes a much more definite place. This can be assumed without entering into a discussion of the merits of the various methods of valuation. Neither would it be advisable to undertake a discussion of the problem of valuation in the brief space which could be allowed it in this book.

While the passage of a similar statute must have come sooner or later, the predicament of the railroads hastened its passage. And while the Act will be amended in some important particulars, "The Act of 1920 using the 'fair return upon value' formula directs the establishment of schedules with the frank aim of limiting maximum revenue. In short, it seeks to secure for the public a part of any future 'unearned increments' which may accrue in railroad earnings."¹ Where it is impossible to administer the act with perfect justice because of such peculiar conditions as referred to earlier in this chapter concerning the Denver & Rio Grande—consolidation seems the only answer. And what can be expected if this legislation remains in force, will be the regional consolidation of railroads. Section 407 of the Act would seem to clearly aim at this result.

The Act provides that for the two years following March 1, 1920, a return of $5\frac{1}{2}$ per cent shall be allowed on the aggregate value of the road. The Interstate Commerce Commission is to fix this value. The Commission at its discretion may add one-

¹Homer Bews Vanderblue, *Railroad Valuation by the Interstate Commerce Commission* (1920), p. 2.

half per cent to provide for improvements, betterments, or equipment chargeable to capital account. This has been done. When the two years have expired, the power to determine what is a fair rate of return devolves upon the Commission. In no instance, as was claimed by some in the early months of the statute's existence, does the government guarantee a $5\frac{1}{2}$ per cent return, but rates shall be so fixed as to earn $5\frac{1}{2}$ per cent (now 6 per cent) on the aggregate value of property in an area. That is, the Commission can divide the railroads into five or six divisions as seems best and establish common rates for the railroads within the group or for all railroads as the Commission determines.¹

As the returns can never be the same on every railroad, the Act further provides that when a road earns more than 6 per cent on its property valuation, one-half the surplus above this rate is paid to the government for a contingent fund. The other half is retained by the carrier and must be placed in a reserve fund until this reserve equals 5 per cent of the value of the property. After this fund has reached 5 per cent, the fund may be used by the road for any lawful purpose. If the road does not earn the 6 per cent in any year, this fund may be drawn upon to make up the difference. The fund paid to the Federal government will be known as the revolving fund and will be used as a fund from which to make loans (under certain regulations) to railroads. With this control of a maximum rate, it is obvious how important the control over valuation becomes.

On the other hand, while many have seriously objected to the method of control in fixing a maximum rate as well as the valuation upon which the rate is to be fixed, railroad securities should be eventually greatly stabilized. This, of course, assumes proper administration. When an increase in wages, materials,

¹ "The several systems shall be so arranged that the cost of transportation as between competitive systems and as related to the values of the properties through which the service is rendered, shall be the same as far as practicable, so that these systems can employ uniform rates in the movement of competitive traffic, and, under efficient management, earn substantially the same rate of return upon the value of their respective railway properties." (Transportation Act of 1920, Sec. 407. Amendment to Sec. 5 in Interstate Commerce Act.)

etc., occurs, the Interstate Commerce Commission now has authority to make a corresponding increase in rates which will yield the return allowed on the property valuation of the road. While that rate after two years must be determined by the Commission, it is not likely that the rate which it establishes will be confiscatory. The statute would then be doomed. Though placing the control of all three factors—namely, valuation, rate, and maximum return—in the hands of this single Commission is open to serious question, it should afford considerable elasticity in operation through this concentration of power into one body. This depends on whether so large a problem, or rather problems, can be administered in this fashion. Added to this is the common fault of the slowness with which government administration operates. Regardless of these faults, if proper allowances are made for costs, when once proper consolidations are perfected and the administration of the Act is properly functioned, greater stabilization should exist in railroad security values.

CHAPTER XV

REVENUES AND EXPENDITURES RAILROAD BONDS

*Income and Expenditure Accounts.*¹—Two things must be kept in mind in the analysis of a railroad statement: first, the relation of income and disbursements to the physical factors of the railroad; second, the relation between the income statement and the balance sheet. The latter gives the strength of the investment and the return on the capital invested, while the former gives the results of operation. To enable the layman to obtain not only a common basis for comparison, but a unit by which he is able to grasp the significance of the income statement and the balance sheet, all operating revenues and expenditures should be reduced to the basis of the mileage unit. This latter is now made possible by the uniformity of railroad accounts.

While the measurement of gross or net earnings in total sums may give the information desired for a particular purpose, a more comparable check to a many-sided problem is needed. It is also necessary to be informed as to the importance of any related corporation or subsidiary and the relation of earnings to capital. This is possible only through a study of the larger relationship of the income statement or revenue accounts to the balance sheet. Operating revenues may reach the highest point of efficiency, as related to the mileage unit,

¹The following books will be found useful to the student in the study of the railroad report: Louis Heft, *Holders of Railroad Bonds* (1916) on the legal problems; F. W. Mundy, *Earning Power of Railroads* (Annual since 1902); A. M. Sakolski, *American Railroad Economics* (1913); Carl Snyder, *American Railways as Investments* (1907); Suffern & Sons, *Railroad Operating Costs* (1911); Thomas F. Woodlock, *The Anatomy of a Railroad Report* (1900). Although this publication of a railroad report was written twenty years ago, it is still a standard classic.

yet the return on the capital investments will not be an adequate one. This is merely the checking up of the operating risk and efficiency with the financial risk.

The discussion of income and expenditures in this chapter develops the principles of analysis, as related to both operation and capital. The summarized statements of the Interstate Commerce Commission are used for this purpose. The income account required by the Interstate Commerce Commission brings together under a common classification all the sources of revenue and the larger grouping of disbursements which are sufficiently well classified to secure detailed comparisons. This exhibit, according to the last official classifications, can be summarized as follows:

Operating Revenues:

- Revenue from Transportation
- Operating Expenses
- Maintenance of Way and Structures
- Maintenance of Equipment
- Traffic Expenses
- Miscellaneous Operations
- Transportation Expenses
- General Expenses
- Transportation for Investment (Cr.)
- Net Operating Revenue
- Deduction of Taxes

Income from Other than Operation

Gross Corporate Income

Deductions from Gross Corporate Income

- Rents (including equipment)
- Losses from Operating Separate Properties
- Interest Charges
- Sinking Fund Requirements

Net Corporate Income

Distribution of Current Net Corporate Income to:

- Dividends
- Additions and Betterments

Appropriation to Reserve

- Miscellaneous

Balance Carried to Profit and Loss

Operating Revenues.—A railroad's operating revenue is derived exclusively from the operation of trains over its mileage, income obtained outside of rail operating not being included. Operating revenue includes:

- (1) Revenue from freight
- (2) Revenue from passengers
- (3) Revenue from express and mails
- (4) Revenue from miscellaneous transportation

Freight and passenger revenues furnish the preponderance of railroad income from operation. The more important of these two sources of income is freight revenue, which, in the United States, yields from 65 to 70 per cent of the railroad's operating income. The ratio of the traffic, in either case, must be studied in relation to the railroad's own mileage and the problems attendant upon its geographical location. While the general freight traffic is considered the most profitable, the preponderance of gross revenue from one class of freight on one railroad as compared with another, and even the differences arising among roads carrying similar traffic, due to a number of local influences, often make direct comparisons of the gross revenues of two or more railroads very misleading. Allowances must consequently be made for both differences in traffic and variations in operation. For illustration, higher carrying charges, which always exist with higher class traffic, tend to reduce the advantage of the higher rate, and an advantage can only accrue in the carrying of this traffic where the proportion of the high class freight greatly increases, so that the law of increasing returns will operate more intensely. The problem of productiveness involved in this analysis brings to consideration the relation of earnings to capitalization, which is considered in the following chapter.

With a proper appreciation of the exceptions and limitations that these conditions must place on the analysis of gross revenue, the simple revenue per mile unit can be used with safety. It is only upon this basis of unit comparison that we can also benefit by a comparison of the analysis of the physical factors. The general tendency and status of gross earnings, it is true, can be determined without any references to the physi-

cal factors whatsoever, but it would be impossible to ascertain the basic cause of the present condition or any changes without them.

Railroad revenue is directly dependent upon the railroad rates. If costs of materials, labor, operations, etc., did not change, once the rate was found that would yield an equitable return, railroad operation would be much simplified. But costs do not remain constant. Even before the War the cost of maintaining and operating railroads was rapidly rising, and from 1914 to 1920 the pressure of upward costs was even more severe. It has been the slowness of the government in recognizing this condition and its relation to rates that has caused the hardships to railroads long after the government turned them back to their owners.

By increased efficiency, railroads for several years offset the disadvantage of increased cost, and increased efficiency in the future may change this limitation, but the railroad, no more than any other organization, should be made to pay the discount in the present for the advantages that may arise, either from inventions or conditions that may make cheaper operation possible, in the future. Even when a good idea is conceived by the operating manager, the very size of our railroad organization generally involves months of delay before his idea can be finally incorporated into the system without causing enormous losses arising through errors in readjustment. Further, the final effect of readjustments cannot always be known until they are applied to a whole system, and mere experimenting with a half-thought-out scheme that seems highly desirable may entail serious loss.

High operating efficiency, however, may not overcome the evil effects which the railroad has suffered from gross over-capitalization, especially if the latter is made the basis for rates. To force a charge here that will maintain a legitimate rate on the capitalization of these railroads, will not be considered equitable from the standpoint of the public and will always be contested, regardless of any justifications for it that may be advanced. The only salvation of these railroads is financial reorganization, and with a very few exceptions, this has already

taken place, in either voluntary or receivership reorganization. The process of eliminating over-capitalization by building up properties to the point of a justified capitalization out of earnings, is rather a long drawn-out process, and so not always a good plan. On the other hand, capitalization has been a greatly over-emphasized influence, though the potential possibilities of its utilization makes it a very strong cudgel for those who oppose rate increases, even where justified. Fortunately, a very small group of railroads fall into this category, and the preliminary Federal valuation report of railroads indicates that the present capitalization of most railroads is not in excess of their property account. While capitalization cannot be the only factor taken into account in a consideration of railroad rates, it will always have a very important bearing upon them in the public mind. It goes without saying, that if an automatic adjustment of railroad rates to changing costs can be made, the element of risk in rates will be greatly minimized. No one, however, would ever maintain that the subtle forces of supply and demand can be moved in any such manner as the puppets on a chess board.

Passenger traffic, though furnishing a minor part of the revenue, can, as evidenced in past experience, prove a large and uncertain burden. What has been said of the decrease in freight rates and the establishment of an equitable rate applies as forcibly to passenger rates. The increasing expense due to the demand for passenger equipment has gone up at a faster rate than passenger returns, though this has been partially offset by extra fares. Where the proportion of passenger traffic is relatively large, as previously stated, the examination of these items becomes increasingly important. With some of the large Eastern trunk-line systems, whose revenues amount to eight or more figures, a decline of a few per cent makes large inroads into net profits.

Revenues from other sources average less than eight per cent for the railroads of the United States. Though some of this traffic is carried on close margins, the rates are fairly well fixed and the fluctuations are consequently slight in comparison to the total revenue. Where losses are continued, there is need for

close scrutiny of the subsidiary items of this account, otherwise they demand little attention.

TYPICAL INCOME STATEMENT OF RAILROAD
PRESCRIBED BY INTERSTATE COMMERCE COMMISSION
Income Statement of the Pennsylvania Company Lines West of
Pittsburgh

For the Year Ended December 31, 1917¹

Operating Income:	1917	
Freight	\$56,199,622.65	
Passenger	13,792,898.89	
Mail	1,492,923.56	
Railway Operating Express	2,249,000.46	
Revenues—All other transportation.....	2,010,043.15	
Incidental	2,899,820.44	
Joint facility—Credit.....	45,407.18	
Joint facility—Debit	94,418.30	
	<hr/>	
Total		\$78,595,298.03
Maintenance of Way and structures...\$	9,960,415.02	
Maintenance of equipment.....	14,751,751.94	
Railway Operating Traffic	1,099,815.72	
Expenses—Transportation	34,474,709.67	
Miscellaneous operations	581,076.66	
General	1,903,815.43	
Transportation for investment—Credit	23,684.92	
	<hr/>	
Total		62,747,899.52
Net Revenue from Railway Operations...		<hr/> \$15,847,398.51
Railway Tax Accruals.....\$	4,524,571.80	
Uncollectable Railway Revenues.....	5,057.67	
	<hr/>	
		4,529,629.47
		<hr/>
Railway Operating Income		\$11,317,769.04
Joint facility rent income.....\$	256,089.24	
Income from lease of road.....	61,928.64	
Miscellaneous rent income	130,339.19	
Miscellaneous non-operating physical property	41,116.43	
Separately operated properties—profit.	8,162.56	
Non-operating Income—Dividend income.	10,456,382.42	
Income from funded securities.....	414,258.19	
Income from unfunded securities and accounts	1,334,761.06	
Income from sinking and other reserve funds	262,787.13	
Miscellaneous income	92,898.41	
	<hr/>	
Total non-operating income		13,058,723.27
		<hr/>
Gross Income		\$24,376,492.31

¹The year 1917 was taken because it was the last year of private operations. At the present writing government regulation or its immediate influence still persists.

Gross Income—brought forward		\$24,376,492.31
Hire of equipment—debit balance.....	\$ 1,098,935.16	
Joint facility rents	688,913.72	
Rent for leased roads.....	9,828,145.10	
Miscellaneous rents	282,472.68	
Miscellaneous tax accruals	12,440.58	
Separately operated properties—loss...	123,330.76	
Interest on funded debt	4,640,703.50	
Interest on unfunded debt	463,641.84	
Maintenance of investment organization	132,160.13	
Miscellaneous income charges	363,025.04	

Total deductions from gross income		17,633,768.51
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Net Income		\$ 6,742,723.80
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Disposition of Net Income:

Income applied to sinking and other reserve funds	\$ 1,356,955.89	
Dividend appropriations of income (six per cent)	4,800,000.00	
Income appropriated for investment in physical property		6,156,955.89

Balance transferred to credit of Profit and Loss	\$ 585,767.91
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PROFIT AND LOSS STATEMENT

Amount to credit of Profit and Loss, December 31st, 1916		\$ 9,172,366.32
Balance of net income for the year.....	\$ 585,767.91	
Sundry net credits during the year.....	640,556.08	

	1,226,323.99
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Amount transferred being unexpended balance of surplus appropriated prior to 1917 for investment in physical property.....	6,071,870.93
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Amount to credit of Profit and Loss, December 31st, 1917	\$16,470,561.24
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Operating Expenses.—Operating expenses of a railroad, though subjected to more careful supervision than any other items, have always been the mark for the severest criticism. A common belief is that to correct exorbitant operating expenses, the railroad management needs only to make the normal retrenchments practiced by any industrial corporation. But the wide variation in the character of railroad traffic, the wide influence to which the traffic is subjected, the increasing demand for better and faster service, the increasing costs of labor and material, together with the fixity of certain items of expense, regardless of the amount of traffic, make the problem of operating expenses a very wide and much more complicated one

than the average industrial corporation is compelled to face. There are no doubt systems in the United States whose operating expenses in the past have not been curtailed to enrich the coffers of a few unscrupulous promoters. Care, however, must be constantly exercised in the examination of railroad operating expenses, not to confuse the difficulties arising out of increasing costs of labor and materials with inefficiency of the operating department.

On the other hand, no industry, as a whole, has shown the same proportion in savings from operating as railroads. A recent editorial states in this regard:

“Railroad managers have corrupted legislatures, conspired with monopolies, grafted in various forms to the injury of their investors and the public. They have carried on foolish and wasteful or selfish financial policies, paying dividends where they should have conserved revenues, wasting in supply and operation, issuing new securities to meet expenses which should have been met from revenue. They have been tactless, narrow, inconsiderate, incompetent, etc., etc. That is, they have been human beings with great opportunities and great temptations.

“But while we have named here the faults of railroad managers of the worst type and some of the faults of all, we ought to recall that the management of many of the railroads ranks among the most admirable achievements of American practical genius. Speaking of American railways in general, a French expert has said: ‘The railways of the United States represent one of the most marvelous efforts of human industry to turn to good account the resources of the country. Through the rapidity of development and the decrease in transport prices, the railways of the United States have made of this territory a country which has one economic life. Notwithstanding the criticisms which the many abuses evoked, they, without demanding of the state anything but liberty of action, have been the principal factor of its wonderful growth in agricultural, commercial, and industrial power, which may shortly attain world-wide supremacy.’ ”¹

It is a separation of the sound from the unsound and the ability to select properties carefully and efficiently operated, that the discriminating analysis of a railroad report should give the investor. This recognition of general conditions affecting

¹*Chicago Daily Tribune*, Editorial, November 23, 1916.

the industry from without, and the existing conditions within, is only the normal method of procedure in any analysis before proceeding to the separation of individual properties and the analysis of the specific details which determine weakness or strength. The standardization of railroad reports, suggested in the beginning, has greatly facilitated these analyses. In studying the operations of a property over a series of years, the trend of a fundamental influence can always be easily detected, though the temporary changes are not always so evident. An investor, finding any indication of any signs of uncertainty, should demand a full explanation; or, if no satisfying answer can be given, and he is to adhere to the sound principle of safety, he should eliminate this security from his list.

Operating expenses must necessarily fluctuate with the amount of traffic, though not to the same degree as with changes in the gross traffic returns. The number of engineers, conductors, etc., can be little reduced, even if traffic falls off to the extent of forcing the movement of half-filled cars. Also fixed charges, such as interest, do not respond to the temporary fluctuation of gross revenue, and even with the long periods of traffic changes, fixed charges respond with little elasticity, as a large part of a railroad must always be in the form of fixed investment regardless of the amount of traffic. As a result, an increase in the gross revenue will render a larger relative increase in net profits than a proportionate reduction in operating expenses. The operation of the law of decreasing costs to the increase of traffic, however, works out quite differently in its effect on the earnings of each individual railroad. In fact, even if a railroad were run at a continuous loss, it would be necessary to maintain fixed properties almost equal to those of a very profitable system. Further, a railroad property, like any industrial, is not immune from market depressions, panics, or crop failures, which increase or retard the volume of its traffic. Fixed costs is the most common basis on which the finance and operating departments can determine what the former must allow from the surplus of the plentiful years, so that retrenchments may not be carried beyond the point of

injuring either the permanent efficiency or the future credit of the railroad.

In percentages, the approximate division of the three principal individual items for railroads in the United States included under the previous heading of Operating Expenses are: Maintenance of Way and Structure, approximately 20 per cent; Maintenance of Equipment, 22 per cent; Transportation and Other Operating Expense, 52 per cent of the total Operating Expense Account. Though these percentages cannot be considered the basis for any particular system, they do give some approximation for the proportion that should exist among these items. The more detailed items in the analysis of these accounts can be procured from the Interstate Commerce Commission and are essential to a more critical analysis. These percentages will fluctuate slightly from the figures given above, but they can easily be checked by the reports of the Interstate Commerce Commission.

Of all the items under operating expenses that reflect managerial ability, the maintenance accounts are most illuminating. If the pressure under decreasing earnings becomes very great, the easiest recourse for relief is the reduction of maintenance charges. A railroad might carry its maintenance charges for several years at a point that would just keep the system going. But this policy cannot continue indefinitely, for the road must eventually rehabilitate all of the depreciated property. And, if maintenance accounts have not been adequately met for several years, the cumulative burden upon the railroad is likely to prove so difficult that heavy fixed obligations will be necessary to place it in normal working order. The temptation always exists of slighting maintenance in order to continue dividends, lest the credit of the company be materially affected. It is unfortunate that the continuous payment of a dividend, even at the sacrifice of legitimate expenses, has been countenanced to the extent it has in this country. This practice has grown out of pressure for the payment of dividends. Controlling interests which have sought to gain their profits from speculations have in a few cases sacrificed the interest of the railroad and

forced the payments of dividends when they were not justified. The savings bank laws which require that dividends must be paid for a given number of years if the bonds of a railroad are to be made legal investments for savings banks may have the same effect. As the bonds held by savings banks give prestige to credit, the road may sacrifice in order to maintain these dividends. The continuation of the dividend, even at the sacrifice of the property, has sustained the market price which has enabled these interests to obtain their profits. But again, it has been only the weak systems that have resorted to this questionable procedure. The major part of the railroad systems in the United States, to the contrary, have more than amply provided for maintenance. This has had a very important influence, both upon the long continued increasing earning power and the strength of credit.

Maintenance of Way.—The Interstate Commerce Commission ruling, which has now been in full effect for approximately twelve years, makes a careful separation between capital expenditures and those expenditures which are strictly for maintenance. It is perfectly apparent that, unless this distinction is followed, a maintenance account would be entirely misleading. To allow all maintenance charges to be capitalized, would cause increasing capitalization of the railroad, and would correspondingly narrow the margin back of the security. The payments to the maintenance account, though contrary to the technical standpoint of accounting, might be charged to capital accounts. By charging to capital what should be charged to maintenance, the investment will appear very profitable when it is not. The same result would be secured as to profits, during the early life of a property, if no allowances for the future were made during this period. The payment of the dividends under these conditions would more and more necessitate the utilization of capital for dividends, and no one needs to argue here the weakening effect that this must have on the finances of the company.

In an analysis of maintenance charges there must be taken into consideration: (1) the number of tracks and mileage of the railroad, (2) the geography and topography of the territory

traversed, (3) the character and density of traffic, and (4) for comparative purposes, the change in labor and material cost.

No direct ratios can be established between these items, for even though two of these items may be fairly constant, the possible variation of the other items would destroy the value of any comparisons, and to find constancy in all of them is highly improbable. Neither do items of expense increase in direct proportion to the mileage. A double or three-track system will not cost two or three times as much as a single track. As the necessity for increased switches, side-tracks, and other terminal facilities increases, the cost will again increase, though not necessarily in a direct ratio, for an increase in the density of traffic may result in greater proportionate increase of income. Doubling the density of traffic will also increase the cost of maintenance, but again not in a proportionate ratio, because of the operation of the law of increasing returns. The Pittsburgh and Lake Erie, on account of its four tracks and its heavy iron ore traffic, had a maintenance of way and equipment charge for the year ending December 31, 1917, of \$34,172 per mile, which is approximately nine times that of the Chicago and Northwestern Railway, with its partly double-tracked line, though the latter railroad is kept at a high standard of efficiency.¹ Under any consideration, a very large increase in maintenance charges can only be justified in an increased trainload, increased earload, and increased density of traffic.

Branch lines cannot, on the other hand, from the standpoint of economy in earnings, be maintained beyond a certain point. For example, ties need not be relaid so often or as good ties used as on a trunk line. This would apply throughout subsidiary line maintenance, particularly where the traffic was not heavy. This, of course, does not imply such usages as those practiced by the St. Louis and San Francisco prior to its receivership in using poor ballast for the grading and the laying of rotten ties.

Topography of territory traversed has a very direct bearing upon maintenance charges. The maintenance charges of a rail-

¹Floyd W. Mundy, *Earning Power of Railroads* (1918-19), pp. 85 and 92. (These figures are taken from Mr. Mundy's computations.)

road in a mountainous region, a right of way subject to floods,¹ a road with a large number of costly bridges, etc., will necessarily be greatly enhanced, as compared to those of a road carrying traffic of a similar amount and character, through level territory. These variations cannot at best be measured accurately, though the examiner should always be able to place his finger on specific causes in order that he may be able to determine the reason of any weakness and how serious that weakness may be.

Every comparative study of operating and especially of maintenance accounts, that does not examine into the change in prices, will lead to wrong conclusions. Too frequently, the mere increase in a total amount put into maintenance is accepted as indicating a stronger position of maintenance. So large have become some of these increases that they demand very special attention. On the basis of increased cost of material, labor, etc., some of the weaker systems, especially, will not show as large a maintenance charge today as they did several years ago, though the actual amount shown in their records has increased. The operating departments of the weak systems, which in addition to these increasing costs of maintenance have also had to cope with the over-capitalization and overbuilding of a quarter of a century ago, have had an almost impossible task. Despite the very great efficiency in operation, it has been an impossible problem with some of these systems. But the efficiency that has been evidenced in bringing the Atchison Railroad, for example, out of the chaotic conditions of this earlier period, when almost all of its bonds were considered a gamble, to the position where its stocks are considered a strong security, will always stand as a lasting tribute to the genius of the men who directed its management.

If doubt exists as to proper expenditures for maintenance, a study of the railroad's statement over a period of years will soon reveal the fact. If a road is in good physical condition and the expenditures are in proper alignment with the expenditures of other years, deduction can be made from them with

¹*I. C. C. Report*, 31 p. 351 Sq. An interesting case will be found in the 5 per cent cases pertaining to the Ohio Floods of 1913.

perfect safety. The same conditions will also apply where there is a faulty distribution, for example, between labor and material costs.

Maintenance of Equipment.—The first essential in proceeding with an analysis of equipment is to divide the data into the three general headings of: locomotives, freight and passenger accounts, and to subdivide each of these under equipment owned free from any charge and equipment under lease.¹ Any accepted standard of measurement, however, should be checked and counterchecked, as variations in the actual amount of equipment, size and character of equipment, character of tonnage, and the character of the railroad mileage may destroy the value of any comparison of a fixed standard—a fact which necessitates continual verifications and counterchecks. But a technical standard of measurement or measurements is absolutely essential for any approximate interpretation of the significance of equipment accounts. To say merely that one railroad spends \$10,000,000 and another \$12,000,000 means nothing, for the latter might have greater or less equipment, or longer or shorter mileage, or a heavier or lighter tonnage, any one of which factors or combination of factors would change the original conclusion based upon the general amounts.

The more commonly accepted measurements are the cost per locomotive mile and the per pound tractive power for locomotives, and the maintenance per car, *i. e.*, the maintenance per car mile of freight and passenger cars. Any consideration of maintenance analysis should not include equipment hired under the tests given above, though this, as far as general results to the railroad are concerned, might be more than offset by rent.

If the variable influences which will tend to affect the conclusions of a standard measurement are fairly well ascertained, the matter of essential counterchecks needed to ascertain the limitations or the necessary conclusions of the accepted measurement will be considerably simplified. At best, a correct measurement is rather complex. For example, the cost per locomotive may be higher in railroad "A" than in railroad

¹See Chapter xvii on Equipment Securities.

"B," because of the larger type of locomotive used; and the cost per pound of tractive power (*i. e.*, upon the amount of traffic hauled) may also be higher, though a combination of the size of the locomotive and the traffic hauled, *i. e.*, per locomotive mile per pound of tractive power, may show a lower cost for railroad "A."¹ The same results might also arise in a comparison of the two standards of measurements. Before measuring the costs of equipment maintenance, the difference in steel and wood equipment should be noted, for the repairs of the former would be proportionately less than the latter. A greater number of cars per amount of traffic hauled will also reduce the wear and tear, and, correspondingly, the cost of maintenance. The distribution of the company's workshops and the policy in handling repairs will always make some variations in the unit costs.² To this might well be added as a qualification, an understanding of the working conditions. For illustration, it might cost one company twice as much as another to put in a new set of flues and the job might not be as well done.

Transportation and Other Expenses.—The costs for the direct moving of traffic are classed under the following heads in the income statement: traffic, transportation, and general expenses. Unlike maintenance charges many of the charges for conducting transportation are fairly constant. Consequently, any saving which can be accomplished in the lowering of these costs is a very positive indication of increased efficiency. Any weakness in organization will likewise very early reveal itself in transportation costs. But caution must be used in making any comparisons with other systems, as local conditions, character of traffic, character of service, etc., will give entirely different results.

With the augmentation of a railroad's traffic, the costs of conducting transportation must increase, but at a decreasing ratio, and vice versa. And the more rapidly that the operating ratio is reduced, the more efficient is the operating management. There is a limit, however, in the decrease of gross earnings beyond

¹A. M. Sakolski, *American Railroad Economics* (1913), p. 203.

²*Ibid.*

which the cost of conducting transportation does not follow. There are certain charges at this limit which cannot be lowered, or are lowered with the greatest of difficulty, regardless of how large the fall in gross earnings may be.

Maintenance charges, it will be remembered, if they have been adequately met from year to year, are a reserve for the future which railroads have frequently made use of by curtailing maintenance during a period of strain. But transportation costs must be met as they arise. Once spent they are permanently gone and no future benefits can form a reserve for these expenditures. On the other hand any reduction of consequence in these costs on an established system entails an increased capital outlay in permanent investment to make such a reduction possible. The cutting of grades and curves for example will often cause a large saving in fuel costs. A railroad management must constantly be pitting its transportation costs and their possible reduction against the cost of any capital expenditures which it may make to affect a reduction of transportation costs. The security of transportation costs has become increasingly important as railroad regulation has become more and more rigid, and this condition will tend to increase rather than decrease.

Individual items, such as fuel costs, labor costs, yard costs, which cannot be covered in detail in a volume of this character, give a great deal of evidence as to where the weakness in conducting transportation may exist. When the conducting of transportation runs over 40 per cent of gross revenue, the situation of the average railroad approaches rather an impossible situation. If locomotive fuel costs go over 15 per cent of gross earnings, real danger to the financial position of the road exists. Fuel costs should approximate about 10 per cent or less of the railroad's gross earnings. Of the items making up the conducting of transportation costs locomotive fuel costs probably should average between 25 to 35 per cent. With the increasing cost of fuel this item needs to be particularly watched, and if any reduction in this outlay can be accomplished without sacrifice elsewhere, it should be looked upon with a good deal of favor. Such costs as clearing wrecks, personal injury charges, etc., which the average individual

seldom even thinks of in the study of the railroad report, though relatively small to the total of all expenses, will average as high as 3 per cent of gross earnings. Again yard costs as a whole may be unduly high. The neck of the bottle in yard operation may be getting the locomotive out of the roundhouse. The student will find much, for example, in a comparison of the expense of yards, etc., of such roads as the New York, New Haven and Hartford and the Union Pacific system that will give him an appreciation of railroad finance.

Labor is another leading item in transportation costs. Increase in wages due both to the power of the railroad union organizations and legislation has often forced the railroads to comply with their demands regardless of the business conditions which prevailed. The principal offset to this has been an increase in efficiency of operation—certain increases in rates have been allowed but never sufficient to offset these differences. A peculiar situation, for example, arose in 1920, and, though an aggravated case, illustrates the kind of problem which the railroads have had to face from time to time. A rate increase was allowed, but in July a wage increase was also allowed and made retroactive from the first of May, 1920. This, together with the slowing up of business, cut down the possible revenues counted on with the increase of rates, and forced an unexpected increase in the operating costs for the year. While much might be added, because of the great importance of conducting transportation, this statement of the problem will suggest the character of analysis essential in dealing with the costs of conducting transportation. Traffic and general expenses are very much smaller with a narrow fluctuation in amount, and therefore do not demand the close scrutiny necessary in observing the specific items under transportation. Expenses will normally vary directly with the traffic density—a fact which is due to the relation of costs to train mileage, for as the density increases, train mileage increases. Where two roads are hauling the same type of traffic, but the one has a much larger ratio of expense to gross revenue, either the rates received are lower, or the efficiency of management is inferior.

Operating Ratio.—The percentage of the operating expense

to gross earnings which is commonly but often loosely used should be employed with caution. The percentage of gross operating ratio is more frequently used than any other index of the measure of efficiency. When the volume of business is constant, and other things are equal, it is a very accurate measure of managerial efficiency; but railroad business, as with other businesses, is dynamic, not static, *i. e.*, it is not constant, neither do other things remain equal. Unless these changes are recognized and given their proper consideration, the operating ratio is misleading. The operating ratio is only valuable in so far as it is taken into consideration with other factors. A more accurate method of determining the burden of operating expenses is to take the five chief subdivisions under operating expenses (indicated in the previous outline) and to reduce each item to its percentage of gross earnings. Thus several ratios are virtually obtained, which make not only a broader basis of comparison, but a very much more accurate method of detecting weaknesses. The operating ratio, itself, neither shows the potential power of capital invested, nor indicates whether there is inefficiency in management or a dearth in business. As one author states: "No indication of causes is afforded. The operating ratio may point to the existence of disease; but it is no further help in diagnosis."¹ And even the separation of the operating expense items suggested above, does not assist in locating the difficulty, except as it is taken into consideration with other factors.

Conditions requiring a different emphasis upon the operating ratio of the various railroads are considerable in number, and can be determined only in a study of the individual railroad. A difference in the financial policy of some railroads in the past in charging to operating what other roads have charged to permanent improvements, necessarily has resulted in large divergences under similar operating conditions. This difference, however, has been eliminated since 1907, as only certain definite items can now be charged to the capital accounts.

A very rapid increase of the mileage of the main line of a railroad, or an increase in the mileage of branch lines, gen-

¹William Z. Ripley, *Railroads, Finance and Organization*, p. 164.

erally increases operating ratios. When a large proportion of the tonnage is high-grade traffic, or an increase in trainloads and density of low grade traffic is brought about, there is a tendency to decrease the operating ratio. Experience has shown that the opposite condition may exist—namely, a high operating ratio on a railroad carrying a high grade of traffic—and it may yield larger profits on its investments than a railroad with sparse traffic and a low operating ratio. A well-built railroad will reduce the operating expenses, though the increased burden of the fixed charges must be offset against the reduction of operating to prove the profitableness of the former. Differences in the length of haul, the proportion of freight to passenger business, the amount of local and through traffic, and the variation from year to year of the total volume of traffic—all have an important influence on the trend of the operating ratio.¹

There has also been for several years a constant increase in the operating expenses, due to the increased cost of materials and labor, and but for the increased operating efficiency, these costs would have increased the operating ratio to a greater degree than they have. Increased costs have, no doubt, been the major influence in the increase of the operating ratio, but it is not the only factor that may bring about an increase of the operating ratio, as has already been stated. Practically every type of corporation, as well as a railroad, now must make every effort to secure greater utilization of its fixed property, by operating on narrow margins, and thus increase the volume of business so that the total net profits on the capital investment will be larger. To the extent that this influence affects an increase of operating ratio, it is desirable from the standpoint of the corporation and the public.

Net Operating Revenue.—The net operating revenue is the balance left, after the deduction of operating expenses from the operating revenue. As every writer on railroad analysis points out, these items are very frequently confused and it should be

¹See also Railroad Act of Feb. 28, 1920, Sections 209, 422 (Sec. 15a), for temporary and permanent changes affecting railroad expenses.

kept clearly in mind as to what they represent. Net operating revenue does not include income from any other source except the actual operation of the plant. It is the representation in financial results of the operating management of the railroad.

It is self-evident from the very method by which net operating revenue is obtained that any analysis of it should be made after operating expenses have first been analyzed. If any of the items of operating expenses, which are subject to considerable elasticity, are temporarily sacrificed or curtailed, because of business depression or other adverse conditions, any conclusions based upon operating revenue alone would not be correct. And, if the policy of sacrificing operating costs has been maintained for several years, in order to make a good showing in net earnings, the consequences are apparent. It is, however, not an infrequent mistake even for bond salesmen to refer to the net operating revenues as an indication of strength, with no reference to the above qualifications that may exist. When net operating revenue increases are due to the increase of gross business, and the proper provisions for operating expenses are made, they do, needless to say, indicate increasing strength.

Another very common mistake is the comparison of railroads on the basis of the net operating revenue per mile. This has no significance whatsoever, unless at the same time a direct comparison is made with the capital investment. A steady growth in net operating revenue, itself, might take place, and it would normally be assumed that the railroad was decidedly strengthening its position; but when this same increase is compared with the new addition made to property, either through increased investment from the outside, or surplus earnings, the rate of return on the investment may prove to be decreasing, *i. e.*, the proportion of fixed investment to the rate of return on the operation of properties has become too large.

Taxes.—Taxes were formerly included as a part of operating expenses. Taxes are now separated and must be subtracted from net operating revenue before any other claims can be made upon this fund by any other accounts. The Interstate Commerce rule states, “and for that reason, it is deducted before arriving at the figure which represents the amount transferred to the

corporations, etc.” Twenty years ago, the proportion of the expenditure in taxes to earnings was relatively small. This is no longer true, as the tax payments each year have become an increasing burden. The burden has usually been the greatest on the non-dividend-paying roads, as a few statutes have made no distinction in the levying of taxes upon the railroads less able to pay. The lack of uniformity of state taxation of corporations commented upon in an earlier chapter, is particularly applicable in the case of railroads. It is only when the antiquated tax systems of many of our states have been relegated to the junk heap that anything like equitable uniformity can be procured.

Other Income.—The total amount of Other Income of railroads ranges from 1 to 50 per cent of the total net income which can be used in the payment of interest and dividends. For all railroads of the United States the average proportion of Other Income to the Total Net Revenue accounts of railroads approximates about 30 per cent. The major part of this income is derived from the ownership of stocks and bonds of other companies, or the control of securities as holding companies. This proportion, consequently, assumes large importance, especially to the stockholder, for any considerable fall of the income from this source will determine whether any dividends shall be paid.

Where Other Income is a large proportion, the analysis of the subsidiary accounts becomes as important as an analysis of the operating accounts of the railroad. In such cases, it is necessary to proceed with the same kind of an examination of the operating accounts that is made of the parent company's report. It is also important to determine whether these securities are carried in the balance sheet at a valuation somewhat near their income basis. When the holdings are large and the subsidiaries are not profitable, the carrying of the securities at par gives an entirely disproportionate conception of the valuation of the parent company's assets. If these holdings are carried much below their real valuation, it may be an indication that an abnormally large amount is thrown back into the properties of the subsidiary companies. If the subsidiary is itself a holding company, these large sums may be placed back into properties of some weak company of its own. This at once raises the question,

in turn, as to what proportion of the income of subsidiary properties is derived from Other Income. A large proportion from Other Income complicates the problem much more and makes any analysis correspondingly more difficult.

Profits to an unjustified extent may be taken out of a well-paying subsidiary by the parent company, to make up for either deficiencies in its own operating account, or the inflation of its own profit and loss accounts. The ultimate outcome may be the "skinning" of the subsidiary. On the other hand, if the parent company continues to credit revenues to its accounts that are due but not paid, it will lead to a large accumulation of paper profits. While this is a legitimate practice, according to accounting principles, it is in effect a padding of the asset accounts. Lastly, the permanency and the fluctuations of Other Income must be closely studied. If the latter is a very large part of the total net revenue of the railroad, serious consequences may follow a business depression of long duration.

Net Corporate Income.—The fixed deduction charges are what are known as fixed charges; namely, Interest, Rent, and Sinking Fund Accounts. The value of the analysis of these charges can be greatly enhanced by the additional analysis of these items on a mileage basis. In any comparative study, the years prior to 1907 cannot be compared to those subsequent to 1907, as taxes were often included in fixed charges. The same is true of the Equipment Accounts, which formerly were placed somewhere under the caption of operating expenses.

As with other unit mileage analysis, a low or high fixed charge per mile of itself has no significance. The road with a fixed charge per mile three times as large as that of another system may have a lighter burden than the latter, even though the percentage of gross may be the same in both roads. These charges must be examined in the light of density of traffic, gross earnings, and operating expenses, before any ruling can be passed upon the stability or strength of their position. For example, one of the most common methods of measuring the security of the interest is on the basis of the size of the ratio of net profits above the fixed charge requirement. Such a ratio, without taking into account the actual amount of the fluctuation in operating ex-

penses, or the stability of gross earnings, can have little significance. As a normal thing, the percentage of fixed charges will be in an inverse ratio to gross income.¹

The rental charges include such items as terminal facilities, trackage rights, transfer privileges, etc. As the demand for these facilities as well as the number of subsidiaries controlled by one system has increased, the importance of these rental charges has also increased. The contracts under which these privileges are made vary widely, though the charges are continuous and must be paid before either the interest or sinking fund requirements are met. An examination of some of the newer leases of the South and Southwest shows either losses or very narrow margins of profit. Probably no better example could be cited in proof of this statement than the former guarantee of high dividends by the St. Louis and San Francisco Railway on the Chicago and Eastern Illinois properties. This guarantee was one of the main reasons for the receivership of the former. The Chicago and Eastern Illinois properties, which were first "milked" by its lessor, later proved a drain which could not be overcome. But at the same time the St. Louis and San Francisco did guarantee, under lease, the Kansas City, Fort Scott and Memphis preferred stock. Under the reorganization there was never for a moment any question that this latter lease would be broken, for the property was far too valuable for the St. Louis and San Francisco to take any chance of losing. Yet it might be unprofitable for the leases rendering yearly deficits to be terminated, as they might have an important bearing upon the total net income of the road. Considerable emphasis should be made in these deficit leases, as to whether these losses are increasing or decreasing. With proper management, they may ultimately prove valuable holdings.

The interest charges fall into three groups: the interest on floating debt, interest on "equipment trusts," and interest upon funded debt. The first of these charges is relatively very small; so any fluctuation that may occur has little perceptible influence.

¹This principle of ratio is well illustrated by Floyd W. Mundy in the *Earning Power of Railroads*. (Issued annually.) These ratios are computed for each railroad.

The other two charges are constant and can be known from year to year, so that a bondholder, after he has made his analysis of operating, may always know what the strength of his equity on the basis of earnings is. In some cases, savings can be anticipated and a consequent strengthening of this equity can be made by the issuance of refunding issues with the idea of refunding these bonds in the near future at a lower rate of interest. Guaranteed dividends, which are usually on leased properties, can also be placed in the same general classification as interest charges as far as the effect on net profits. If subsidiary properties are involved, the investor should note whether all interest charges for the fiscal year have been recorded in their final accounts. Amortization charges and sinking fund accounts have dropped into relative insignificance in recent years. As Mr. Chamberlain states, "experience has demonstrated that money is more wisely appropriated if it is not sequestered in special funds, but is returned immediately to the road in heavier maintenance, or more extensive improvements, with trust in the increased earning and better credit thus acquired, to refund the issue at maturity in a general scheme of debt consolidation. But it does not apply to bond issues—which do not create a permanently greater earning capacity."¹ The more notable exceptions which should be amortized are the ear-trust issues, which are discussed at length in Chapter XVII.

The net corporate income is the net profit that is left after deducting all previous charges mentioned. This is a fund which the directors may divide and distribute as dividends, or place in the property account, as they may rule. While the operating expense accounts may not have been adequately maintained, the net surplus is entirely at the disposal of the officials. It is apparent, then, why it is so dangerous to place so much emphasis upon the surplus accounts, without the proper examination of all corporation accounts. Too often, in the past, surplus accounts have existed where deficits or near deficits would have existed if the principle of sound maintenance of properties had not been violated. If all previous accounts have

¹Lawrence Chamberlin, *Principles of Bond Investments* (1911), p. 275.

been maintained, the average current surplus per year should represent the investment strength of the railroad's securities.

This does not mean that a greater absolute amount or a greater amount of surplus per mile necessarily indicates greater safety of one railroad over another. Nevertheless, where a railroad possesses a larger comparative amount of surplus than another railroad it is commonly accepted as indicating greater strength, and this is even more true than the same kind of general conclusions used in analyzing net operating revenue. These conclusions are, however, only the normal result of much of the prevalent loose analysis of railroad securities. Large surpluses are desirable, but other things must be equal.

Distribution of the Current Surplus.—As stated in the previous topic, the excess of surplus of one road over another indicates superior strength only in so far as the other items of the income statement show a corresponding strength. The chief dispositions that may be made of surplus are either to place it directly back into the properties, or to credit it to profit and loss. The policy of American railroads, in the disposition of the surplus, has been decidedly more conservative than that of industrials. A very large amount has continually been placed back into property. Where the policy of placing large proportions of surplus back into property has been consistently followed, it has meant a conservative dividend policy, which, in turn, has been reflected in the ultimate increase of property values. Again, the comparative importance of the appropriated surplus account depends upon what amount has originally been placed in maintenance accounts. If the latter accounts have not been sufficiently imbursed, the "appropriated surplus" is of less importance. Before the Interstate Commerce Commission adopted its present requirement of charging direct to maintenance accounts all funds so appropriated, it was not an infrequent practice for a railroad, in order to make a good showing, to "skim" maintenance accounts for the purpose of increasing the surplus account for the year. If the road paid a small part of this surplus for the year in dividends, it would appear from the examination of the net revenues alone, that the road was following a conservative policy. An examination

of the operating accounts, however, would reveal that the contrary was true. This was purely a bookkeeping subterfuge. Some railroads which showed a respectable current surplus, under these conditions, were forced to borrow within the same year.

Even with consistently steady net profits from year to year, a railroad is never justified in paying these profits all out in dividends. A road which has retained a certain amount of its surplus every year, places itself in such a strong position that it will not generally be forced to borrow in a temporarily high and strained market. Neither is the corporation, as long as a portion of the surplus is placed back into the properties, forced to make large increases in its capital obligations, and consequently its borrowing power is strengthened.

CHAPTER XVI

RAILROAD BONDS: THE BALANCE SHEET AND CAPITAL ACCOUNTS

The railroad balance sheet presents a summation of assets and liabilities with their respective valuations on a given date. Historically, it gives the cumulative results in property accounts since the organization of the railroad. In this latter, the distinction between the different kinds of assets and liabilities extends beyond the mere portrayal of the individual items in the statement. Because of the large amount invested in the fixed property of railroads, there is a particular interest to the bondholder in the study of the balance sheet. The balance sheet items are, however, of real value only when used in conjunction with the income statement.

The Condensed Balance Sheet following, is the form prescribed by the Interstate Commerce Commission. The policy of separating the operating properties is followed in the balance sheet, as in the separation of the income from the various sources in the Income Statement. The assets of the General Balance Sheet are divided into the main headings: (1) Property Investment; (2) Working Assets; (3) Accrued Income Not Due, and (4) Deferred Debt Items; and the liabilities into: (1) Capital Stocks; (2) Mortgage, Bonded and Secured Debts; (3) Working Liabilities; (4) Accrued Liabilities Not Due; (5) Deferred Credit Items; (6) Appropriated Surplus, and (7) Profit and Loss. The more important divisions under these headings will be given as the discussion of the balance sheet proceeds.¹

¹As stated elsewhere a complete and detailed report of any railroad system may be obtained from the Secretary of the Interstate Commerce Commission for a nominal sum.

ANNUAL REPORT

CONDENSED GENERAL BALANCE SHEET, DECEMBER 31, 1917

ASSETS

THE NEW YORK CENTRAL RAILROAD COMPANY

INVESTMENTS:

Investment in road.....\$460,514,249.12

Investment in equipment:

Trust 95,106,669.96

Other 138,998,261.64

\$694,619,180.72

Improvem'ts on leased r'way property

92,132,201.72

Miscellaneous physical property.....

8,680,603.82

Investments in affiliated companies:

Stocks \$133,799,976.96

Bonds 9,952,035.88

Notes 36,266,355.57

Advances 14,516,500.80

194,534,869.21

Other investments:

Stocks \$ 31,139,974.32

Bonds 1,046,544.52

Notes 11,480,026.03

Advances 750,039.12

Miscellaneous 12,765.00

44,429,348.99

Total investments

\$1,034,396,204.46

CURRENT ASSETS:

Cash \$ 13,407,045.26

Special deposits..... 934,098.51

Loans and bills receivable..... 43,960.22

Traffic & car-service balances rec'v'ble 6,514,277.27

Net balance due from agents and con-
ductors 9,616,893.84

Miscellaneous accounts receivable... 16,131,617.97

Material and supplies..... 34,239,829.70

Interest and dividends receivable.... 3,405,282.19

Other currents assets..... 534,840.31

84,827,845.27

DEFERRED ASSETS:

Working fund advances..... \$ 201,715.87

Insurance and other funds..... 727,893.45

Other deferred assets..... 4,749,890.72

5,679,500.04

UNADJUSTED DEBITS:

Rents and insurance premiums paid in advance	\$ 37,769.17	
Discount on funded debt unamortized	6,883,107.79	
Other unadjusted debits.....	5,289,656.94	
Securities issued or assum'd—unpl'd'g'd	730,000.00	
Securities issued or assum'd—pledged	20,500,000.00	
Securities acquired from lessor companies (per contra)	457,851.00	
		<hr/>
		33,898,384.90
		<hr/>
		\$1,158,801,934.67

THE NEW YORK CENTRAL RAILROAD COMPANY
CONDENSED GENERAL BALANCE SHEET, DECEMBER 31, 1917

LIABILITIES—(Continued)

STOCK:

Capital Stock.....	\$249,849,360.00
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LONG TERM DEBT:

	Nominally	
Funded debt unmatured:	Issued	
Equipment obligations.....	\$1,218,000.00	\$44,802,086.19
Mortgage bonds.....	20,000,000.00	546,581,000.00
Debentures		105,500,000.00
Notes		15,000,000.00
		<hr/>

711,883,086.19

CURRENT LIABILITIES:

Loans and bills payable.....	\$17,302,450.00
Traffic & car-service balances payable	6,330,806.54
Audited accounts and wages payable.....	18,144,635.24
Miscellaneous accounts payable.....	7,161,505.47
Interest matured unpaid:	
Matured, payable	
Jan. 1, 1918.....	\$2,926,772.38
Interest unclaimed....	33,465.85
	<hr/>
	2,960,238.23
Dividend declared, payable Feb.1,1918	3,119,902.50
Dividends matured unclaimed.....	186,635.05
Funded debt matured unpaid.....	4,790.00
Unmatured interest accrued.....	5,544,260.35
Unmatured rents accrued.....	824,329.50
Other current liabilities.....	2,275,557.56
	<hr/>

63,855,110.44

DEFERRED LIABILITIES :

Liability to lessor companies for equipment	\$14,715,322.52
Miscellaneous	569,541.50

15,284,864.02

UNADJUSTED CREDITS :

Tax liability	\$ 3,567,909.53
Insurance and casualty reserves.....	580,065.50
Operating reserves	1,192,914.99
Accrued depreciation of equipment..	33,159,007.29
Liability to lessor companies for securities acquired (per contra)....	457,851.00
Other unadjusted credits.....	3,168,016.65

42,125,764.96

CORPORATE SURPLUS :

Additions to property through income and surplus	\$ 93,628.85
Sinking fund reserves.....	464,918.47

Total appropriated surplus.....	\$ 558,547.32
Profit and loss—credit balance.....	75,245,201.74

75,803,749.06

\$1,158,801,934.67

The Property Account.—As referred to under the subsequent topic of Liabilities and Capitalization, it is essential that itemized accounts representing the accumulation of property accounts, as originally entered, shall be retained in the statement to give the true fiscal changes which take place from year to year. To the security holder, however, bookkeeping entries are of interest only in so far as they can be used in determining what valuation can be placed upon the property account back of his holdings.

Property Investments include the chief headings of: (1) Road and Equipment; (2) Securities; (3) Other Investments, and (4) Miscellaneous Investments. The first of these, and by far the largest, is Road and Equipment. Prior to the required separation of the Road and Equipment accounts required by the Interstate Commerce Commission in 1907, the property accounts of different roads represented entirely different things.

There was always a temptation to the weaker companies to utilize this opportunity to make a stronger showing for their property accounts. The required creation, also, of the "Reserve for Accrued Depreciation" (for equipment in 1907 and all properties in 1918) which many companies had not carried, made it possible to estimate property values, if the property values on the basis year of 1908 and 1919 were correctly entered. Prior to 1918, several of the more profitable systems had charged new construction to operating expense, a practice which made no increase in the property investment account, though the value of the railroad's property holdings was much stronger.¹ Weak systems followed the contrary policy of failing to write off proper losses for direct depreciation, the abandonment of property, or obsolescence.² The railroad accounts then represented a surcharging of maintenance which the accounts did not show. To compare two roads under these conditions would be comparing two different things.

Fixed assets, as with other railroad accounts, can be best measured by reducing these accounts to the mile unit base. But, as with any unit of measurement, this must be used with qualification. No unqualified standard of measurement for property investment will ever be found, as no two railroads, even with equal mileage, are operating under the same conditions. Two railroads may have the same amount of traffic, but if one is operating through a mountainous country and the other through level territory, it would make a comparison of the fixed investment per mile, the most common unit of measurement worthless. One railroad may have its own terminals, while the other does not. This makes the investment per mile of the one railroad much higher than that of the other. One railroad may have deliberately invested a very much larger amount in fixed property, and yet secured a very much larger return on its investment than the other road because of the lower operating expenses resulting from this investment. One

¹See *I. C. C.*, vol. xxix, pp. 58, 515 (The Chicago, Milwaukee and St. Paul case in connection with the Puget Sound extension offers some interesting side-lights on what can, without legal violation, be hidden or omitted in an account).

²Homer Bews Vanderblue, *Railroad Valuation*, pp. 113-117 (1917).

railroad might own a very much larger amount of its equipment and the other would have to pay larger rentals or interest charges.

Some analysts fail to make any distinction between the road which owns its total mileage outright and the company which leases or controls, through stock ownership, the larger part of its mileage. Where a large part of the property operated is of either of the latter forms, the transferring of this account from the property account to the account of securities owned would make a material difference in the comparison. It is, of course, a mere difference in bookkeeping, for the value of the road is just the same. It does, however, destroy the value of a mileage measurement, unless these qualifications are properly weighed. This kind of standardization, as frequently suggested in these pages, is merely to simplify the method of analysis and make the interpretation more simple. The analysis of a railroad, at best, is complex, and the simpler the forms can be kept and yet reveal the correct results, the less opportunity there is for errors of interpretation.

A check upon the property accounts over a series of years should reveal in the comparative examination of the accounts, where the expenditures upon property have been made and how any increase compares with the general growth, if any, of the system. By a comparison of these accounts with the income statements covering the same period, the character and the sources of the appropriations to construction accounts can be determined. The character of these disbursements is also another check upon the conservative or non-conservative managerial policy of the railroad. With the detailed items, now required by the Interstate Commerce Commission, it is possible to obtain these results with a considerable degree of accuracy, though not for the period prior to 1908.

Investment securities include those investments which have been directly issued on subsidiaries owned, securities of subsidiaries that have been assumed, and those of outside corporations. These again are divided into two classes, those that are held in the treasury of the railroad for investment and those which are deposited, as collateral, for loans. From the stand-

point of the property accounts, there are three questions which arise concerning these investments. First, does the book value of these securities as carried in the accounts represent the market value of these holdings? Second, are all the securities owned deposited as collateral so that no further credit is available upon these holdings? Third, are security and stability of the dividend or interest from these securities assured? It has been a not uncommon practice to carry these securities in the balance sheet at a greatly over-valued figure, when compared with their actual market value. This results in a corresponding inflation.¹ As a matter of fact the item investment in the balance sheet may conceal a great deal—it usually does. Take the case of the Alabama and Great Southern, one of the subsidiaries of the Southern Railway and an extremely valuable property. The latter road carries this subsidiary property at a little over \$1,000,000. Included in this is ownership of about \$1,000,000 Cincinnati, New Orleans and Texas Pacific Stock which is worth approximately \$2,000,000 alone. On the other hand, the New Haven Railroad carries on its balance sheets various investments, especially the street railway properties, in many cases at a price of par or over for the stock which is at present far under this valuation.

As stated under Other Income, while the direct earnings of the controlled subsidiary show a deficit, they may have a very material effect on the total earnings of the holding company. For example, in the joint control of terminals, the earnings might show an actual deficit on the terminal corporation, but what could the railroad do without terminals?²

The miscellaneous investments, with few exceptions, are not generally very important. The separation of the former coal holdings of some of the railroads from their own holdings, as required by the commodities clause, has reduced this item to a considerable extent for a number of the so-called coal railroads.

Where the railroad possesses or leases other property, it

¹*I. C. C.*, vol. xxix, pp. 139 seq.—Illustration of security inflation in subsidiary security holdings are to be found in the receivership case of the San Francisco Railroad Company.

²*I. C. C.*, vol. xlv, pp. 1-223 (Pere Marquette Case).

is not required to publish any facts concerning the operation of this property, so that the holder of the railroad security may be left entirely in the dark as to the value of these holdings to the company, unless the board of directors desires to make the facts public. No analysis of a railroad can be complete without this information, though its importance varies with the amount of the property held. And if there is danger of its becoming an opening into which funds might be poured, the process might not only be costly but result in very large losses, as has been experienced by some railroads.¹

Current Accounts.—Though the current accounts are in a very small ratio to the fixed assets of a railroad, they may be measurably more important, especially in relation to the payment of fixed charges. If a railroad is not able to pay its interest charges on the date that they fall due, foreclosure is inevitable, unless extensions can be secured or additional loans can be made. Additional loans, however, are not only undesirable, but often impossible, and as far as the future is concerned they only increase the burden. The cash account, therefore, is the most important single item in the current accounts. Current items, of course, that can be readily turned into cash, will furnish relief in case of necessity. As the larger part of the revenue of railroads is in the form of cash transactions, there is never a very large amount from other sources that can be turned into cash. Materials and inventories accounts generally need be given little consideration, as they must be used for the railroads' own immediate replacements and repairs. A large account in materials, however, would signify that the expenditures for materials could be curtailed for a short period, at least, and the maintenance accounts not suffer.

A separation should be made between those receivable accounts which are due from a railroad's own subsidiaries and the receivable accounts due from other outside sources. Receivables due to a railroad from its subsidiaries might even be in the form of advances for interest and maintenance charges. A large amount of receivables of this character are often con-

¹*I. C. C.*, vol. xxvii, pp. 560 seq.—The New England Investigation. (The Weakness brought out in the Boston and Maine is applicable.)

tinued obligations, and if the subsidiary road is ever to pay these debts, it may be forced to fund these current obligations. Under the old forms, or lack of forms, of unregulated reports, it was a comparatively easy matter to shift the accounts of this character. Where receivables are from outside sources, they are of very small amounts, of very short duration, easily collected, and never give serious concern.

Liabilities and Capitalization.—The liability accounts are: (1) Capital Liabilities; (2) Working Liabilities; (3) Accrued Liabilities Not Due; (4) Deferred Credit Items; (5) Appropriated Surplus, which includes the balance of Profit and Loss (for the year). The most important of the above is Capital Liabilities. Any discussion of Capital Liabilities, in order to avoid many of the confusions growing out of an examination of capitalization, must distinguish between capital and capital liabilities, as has been previously mentioned. Capitalization, which is the total amount of paper evidence of obligations issued, does not necessarily represent the same thing as capital, which represents tangible property. The latter may be much greater or much less than the security liabilities of the corporation. If maintenance and depreciation have been amply covered and a large amount from surplus earnings placed back into the property, the capital account will be a very much larger amount than the capitalization, *i. e.*, the par value of the securities outstanding. On the other hand, if the property is allowed to deteriorate, or the tangible property is overhauled, and the securities issued to the amount of this valuation, the capital amount will not be less than the capitalization. In other words, the par value of the outstanding securities will be much more than the actual value of the property account. In the long run, however, these variations between capital and capitalization are reflected in the price of railroad securities.

Capital liabilities are divided into capital stock, mortgages, bonds, and notes. The prevalent stock issues are the preferred and common stock issues, though a number of old issues known as guaranteed stock, which may be either one of the former stock issues guaranteed by a second corporation, usually a parent company, are still outstanding. A few special types of

capital stock, whose complete financial status must be procured from the individual reports or records of the company, are to be found among the older issues.

Preferred stock issues steadily increased from 1890 to 1898, during the period of railroad reorganization, when railroads were forced to reduce their interest charges.¹ Since 1900, however, the use of preferred stock by railroads has declined. This decline in some large measure was due to the increased rates offered by other public utilities and industrials on their preferred stock issues. Railroads could not profitably compete with these higher rates and so resorted to bond issues. With the influence of the higher interest rates which must now be paid for money together with the Federal taxes, preferred stock issues will increase in the future. This is already evidenced in the issue of preferred stocks in recent receivership organizations. Modification, however, will be found in the railroad preferred stock regulations from the elaborate regulations still attached to some preferred stock issues of industrials, many of which are of no importance.

Railroad bonds offer the most perplexing problem, not only in railroad financial statements, but in all corporate loans. If all the credit obligations of a railroad were in two or three different bond issues with a first, second, and third lien against all properties of the railroad, the problem of credit obligations would be relatively simple.² But with the intricacies in the corporate relationships which have been built up through the use of construction companies, holding companies, mergers, consolidations and guarantees, creditors' claims and liens are, indeed, complicated ones. The total aggregate burden of these obligations upon the mileage of a railroad can be best tested by reducing the total obligations to a per mile basis. A complete knowledge of the burden of these obligations, coupled with

¹Stuart Daggett, *Railroad Reorganization* (1908). A study of the receiverships in this volume gives a number of illustrations of this increase of preferred stock issues.

²The White and Kemble's *Atlas and Digest of Railroad Mortgages*, gives the complete details of the mortgage lien in graphic form, which very much simplifies the complicated details of the railroad mortgage. Accompanying these maps is a copy of the mortgage instrument.

the analysis of its net earning power, indicates the railroad's ability as a going concern, as well as its potential possibilities for the future.

While the claims of a particular security cannot be isolated from the aggregated obligations of the company, as a going concern, the priority in the claim of an individual issue does give an advantage in forfeitures of the company's own claims. It is for this reason that the first mortgage bond will sell at a premium and a third mortgage may sell at a discount, even where both bond issues are on exactly the same mileage. If the lien of a single issue is, for illustration, a first lien on a part of the main line mileage, a second lien on the remainder and a third lien on some branch line, what is the exact value of the holder's claims? Again, a debenture bond upon one railroad is often more desirable than a first mortgage upon another system. It is the equity which the security possess, as well as the value of the mileage and property covered by the mortgage that must determine the value of the claim.

The variations in these liens are illustrated in the two mortgage maps of the Buffalo, Rochester and Pittsburg Railway and the Florida East Coast Railway.¹ In the mortgages of the former railroad, the consolidated 4½s of 1957 are a good illustration of several different liens under a single mortgage. The only difference between this particular mortgage and a trunk line is that the latter will generally represent a greater mileage. In the Florida East Coast Railway is represented one of the simplest mortgage structures. Trunk lines, of course, will not show as simple a structure as this latter system. The keys to the maps are self-explanatory.

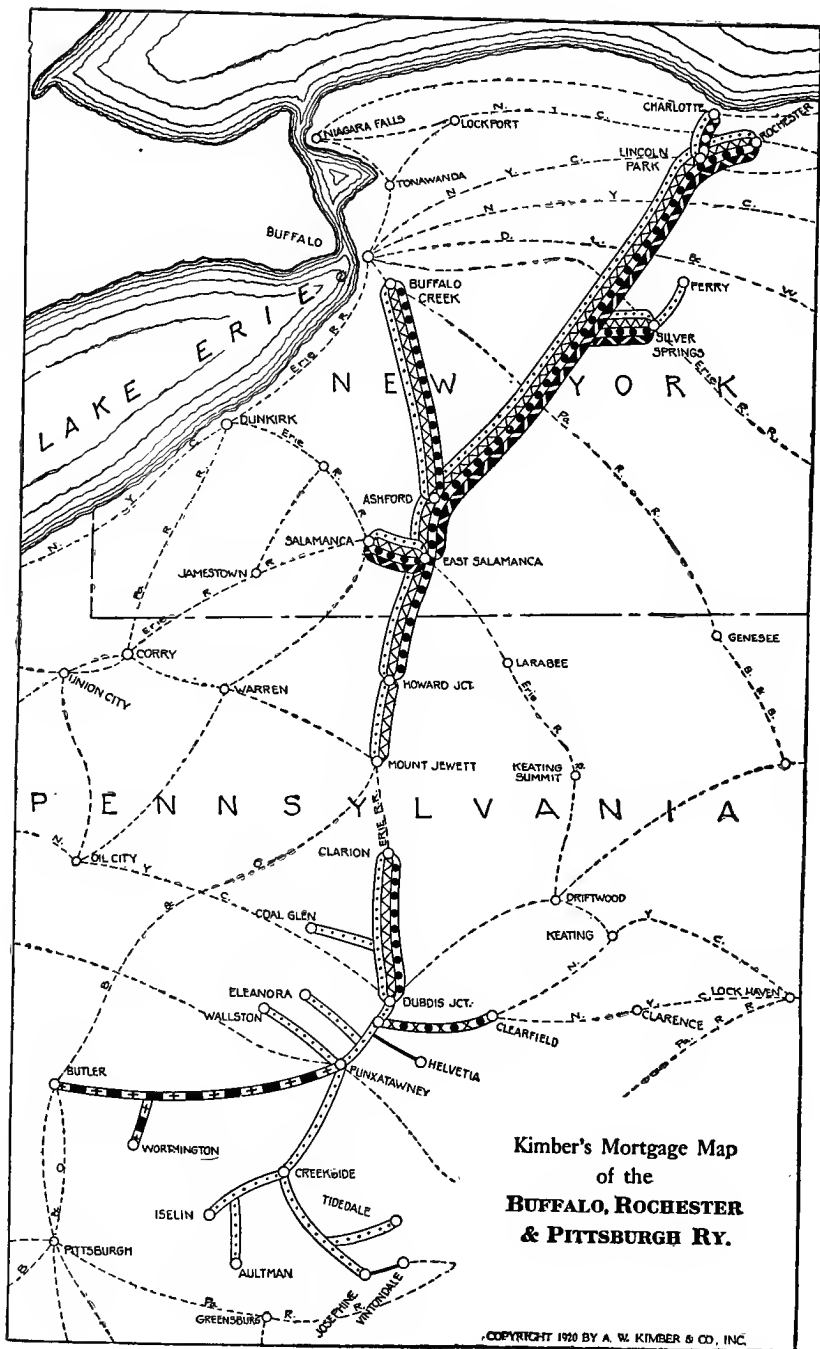
¹The two railroad mortgage maps cited were selected because of their simplicity and compactness. These two mortgage maps, however, represent the two contrasts as well as the more complicated and larger maps of the trunk-line systems. The purpose in the use of these maps is to bring out the difference in the character of liens. These maps are taken from the plates of the *Kimber Railroad Mortgage Map Atlas* through the courtesy of Mr. A. W. Kimber.

The student will find railroad mortgage maps invaluable. He will find his study not only much simplified as far as a real understanding of liens but infinitely more accurate.


BUFFALO, ROCHESTER & PITTSBURGH RAILWAY


NOTE—In combinations of symbols the heavy symbols
represent first or underlying liens.


Buffalo, Rochester & Pittsburgh Gen. 5s, 1937.....	XXXXXXXXXX
1st lien on 19 miles	
2nd lien on 125 miles	
3rd lien on 109 miles	
Also secured by 1st lien on practically entire capital stock of Rochester & Pittsburgh Coal & Iron Co.	
Authorized: \$4,780,000. Outstanding: \$4,427,000.	
Do Cons. 4½s, 1957.....	.....
1st lien on 105 miles	
2nd lien on 29 miles	
3rd lien on 125 miles	
4th lien on 109 miles	
Also secured upon \$249,700 (total issue \$500,000) capital stock of Lake Ontario Ferry Co., Ltd.	
Also secured on 99 miles of leaseholds and 131 miles trackage rights.	
Authorized: \$35,000,000. Outstanding: \$16,414,000.	
Allegheny & Western 1st 4s, 1998.....	++++
1st lien on 62 miles, including branches.	
Guaranteed principal and interest by Buffalo, Rochester & Pittsburgh Ry. Co. by endorsement.	
Closed Mortgage. Outstanding: \$2,000,000.	
Clearfield & Mahoning 1st 5s, 1943.....	XXXXXX
1st lien on 26 miles	
Guaranteed principal and interest by Buffalo, Rochester & Pittsburgh Ry. Co. by endorsement.	
Authorized and outstanding: \$650,000.	
Lincoln Park & Charlotte 1st 5s, 1939.....	.....
1st lien on 10 miles	
Guaranteed principal and interest by Buffalo, Rochester & Pittsburgh Ry. Co. by endorsement.	
Authorized and outstanding: \$350,000.	
Mahoning Valley R. R. No Mortgage.....	.....
Leased in perpetuity to Buffalo, Rochester & Pittsburgh Ry. Co.	
Rochester & Pittsburgh 1st 6s, 1921.....	.....
1st lien on 109 miles	
Assumed by B., R. & P. Ry. Co.	
Closed Mortgage. Outstanding: \$1,300,000.	
Do Cons. 1st 6s, 1922.....	.....
1st lien on 125 miles	
2nd lien on 109 miles	
Assumed by B., R. & P. Ry. Co.	
Closed Mortgage. Outstanding: \$3,920,000.	




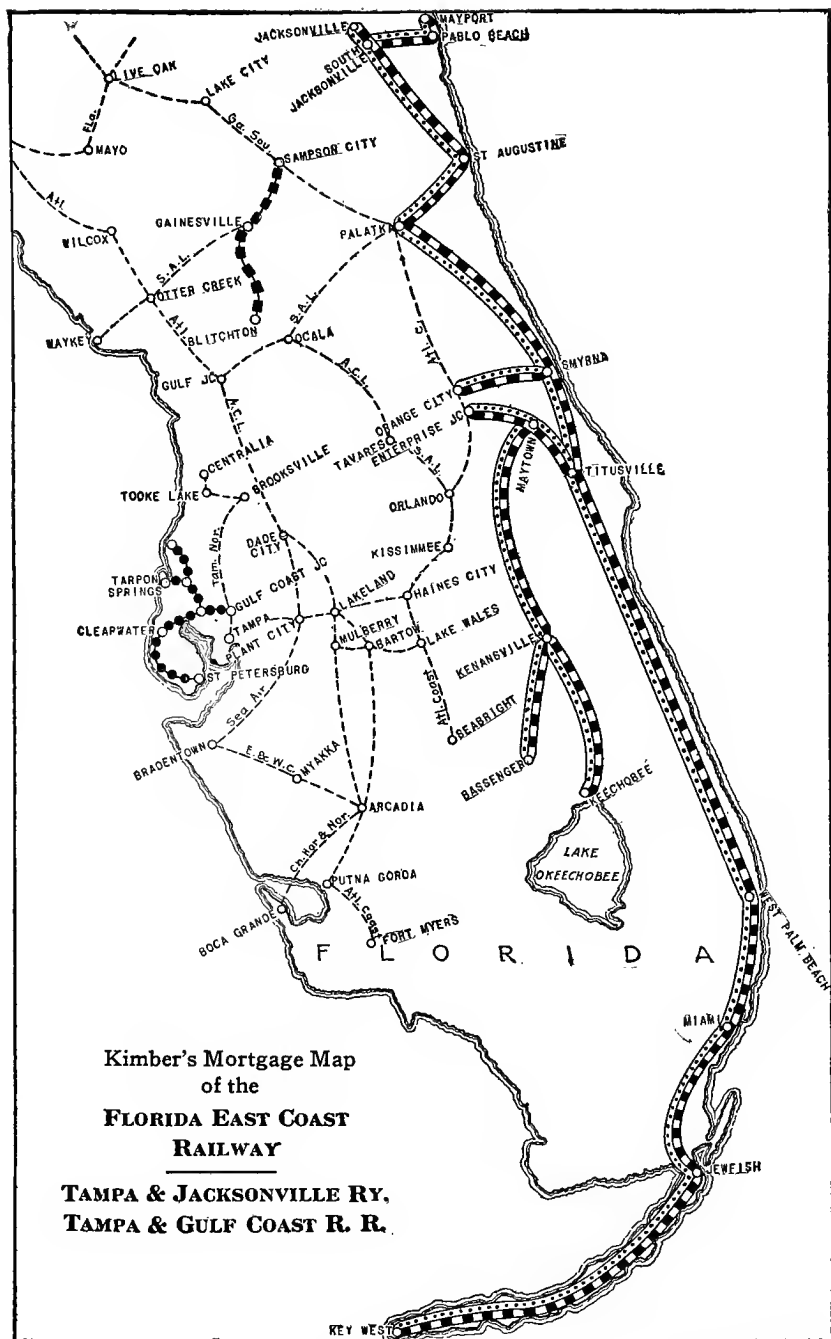
FLORIDA EAST COAST RAILWAY

Florida East Coast 1st 4½s, 1959..... 
 1st lien on 617 miles and equipment
 Also secured by pledge of following:
 Securities Deposited Issued
 Atlantic & East Coast Term.
 Ry. Co.\$12,500 \$ 25,000
 Jacksonville Term. Co.... 49,800 200,000
 Authorized and outstanding: \$12,000,000.

Do Gen. Income Bonds 1959..... 
 2nd lien on 617 miles
 Authorized and outstanding: \$25,000,000, all
 owned by H. M. Flagler estate.

Tampa & Jacksonville Ry. 1st 5s, 1949..... 
 1st lien on 56 miles
 Authorized: \$10,000 per mile of road.
 Outstanding: \$480,000.

Tampa & Gulf Coast R. R. 1st 5s, 1953..... 
 1st lien on 79 miles
 Further secured by pledge of 50-year traffic
 agreement with Tampa Northern R. R. giving
 company entrance into Tampa and use of Tampa
 terminals.
 Guaranteed principal and interest by endorse-
 ment by Seaboard Air Line Ry. Co.
 Authorized: \$5,000,000. Outstanding: \$750,000.



Kimber's Mortgage Map of the
FLORIDA EAST COAST
RAILWAY

TAMPA & JACKSONVILLE RY.
TAMPA & GULF COAST R. R.

On the other hand, to maintain that this equity will be fully recovered in foreclosure is absurd. However successful a receivership may be, junior liens, at least, are always forced to compromise their claims. And no one is absolutely assured of his claims until the highest court has passed upon all creditors' claims. The easy success of the railroad reorganizations of the nineties will never be repeated.

"The reason why the regulations of 1889 to 1893 were successful," writes the editor of the *Railway Age Gazette*, "was because during the years that followed there was a tremendous expansion in the business of the country, a wave of prosperity in all lines of industry, and a freedom from governmental interferences. . . . For this reason a reorganization similar to that of the Baltimore and Ohio, or the Northern Pacific, would stand a small chance of being successful with the Wabash or the Frisco [speaking of the four recent receiverships, namely: the Wabash, the St. Louis, and San Francisco, the Chicago, Rock Island and Pacific, and the Missouri Pacific].

"It is absolutely essential, if the success of the reorganization of the four properties now in difficulties is to be based on anything more substantial than a hope for good luck, that the scaling down of fixed charges be drastic; that the amount of new capital to be put into the company be ample. . . . Furthermore, a very substantial margin of safety between fixed charges and minimum earning charges must be assured."

The attitude of conservative interests is further expressed in the method of capitalization pursued by some of the speculative enterprises. "Under no conceivable definition of the word could these stocks be considered investments at any time within the past ten or fifteen years. They were speculative pure and simple, and the speculator must be prepared to take losses as well as profits . . . [the junior securities]. This class of investors should be able to take a temporary loss for its ultimate gain. Since the only way that these junior securities can ever be developed into good interest paying investments, is by a very complete change in the theory on which the roads have been financed heretofore, it would appear that in the long run holders of such securities would very much benefit by submitting to quite a severe present loss."¹ This must continue to be the experience of any over-inflated securities, regardless of what may develop in the railroad situation.

¹The *Railway Age Gazette*, vol. lvi, No. 22 (May 29, 1914) p. 1174.

Not all of this bonded and other indebtedness appearing in the balance sheet has been directly created by the railroad upon its own properties; *i. e.*, there is a distinction between bonds on the company's own railroad property and the investments in other enterprises. A very considerable amount of railroad mileage is also operated under lease, which is, as far as the operating company is concerned, as much a payment for the capital as is the payment of interest on bonds. The varying rates, amounts, and duration of these leases, which are never fully given in railroad reports, make it difficult to capitalize their value. Under these conditions, it is possible to capitalize these rentals only at an arbitrary rate. Any rate assumed in estimating the real investment value of these leases should be made on the present market rates. If the railroad is paying less than this rate for its lease, it has that much advantage.¹ Where the full information concerning these leases is given, it is a simple matter to evaluate them. This method of evaluating leases will be found to be more accurate than merely adding the stocks and bonds, because of the varying character of the leasing contracts, unless sufficient detail of each contract is given to capitalize each one separately and thus to secure an unquestioned valuation of the total.

The gross capitalization of the railroad, then, is the sum of its outstanding capital stock, mortgages, bonds, notes, and the approximate rent capitalization;² and net capitalization is the remainder after the deduction of the item "Securities Owned," which renders an income to the railroad, from the total gross capitalization. Where bonds are issued, but deposited as collateral, and notes are issued against them, the amount added to gross capitalization would be the total of the bonds deposited as collateral. The notes outstanding would be the net capitalization. Neither should the unissued securities which are allowed by regulation to be carried at par and to be offset by a current asset in the balance sheet be included in the net capi-

¹The guarantee, for example, of 10 per cent on the United New Jersey Railroad and Canal Company by the Pennsylvania is really a cheap guarantee from the point of view of the parent company.

²If this item is to appear as a liability it should also be included as a part of the property investment on the asset side.

talization. No money has been expended in the representation of these accounts. They are merely bookkeeping items; net capitalization is a representation of an actual capital investment.

The magnitude of the investments of a number of railroad systems makes the value at which they are carried an important influence on the capitalization of the company. The legal limitations now placed upon these investments by the Federal government have forced some sales of former holdings of securities, and the amendments to the Federal laws and the adoption of additional laws in 1913 will check future investments.

The practice of carrying these securities at par, rather than at a fair market value, does not give the true value of the holdings.¹ A subsidiary company whose bonds are carried at par may have failed to earn its interest charges for years, regardless of what the securities may have cost. No corporation, or individual at least, would be willing to purchase these securities at par. The value of many of these securities can be obtained only through an investigation of the individual properties. For many of these issues which have been deposited in the safety deposit boxes of trustees, there has never been any general market price. Other securities have never even had a market quotation.

Upon one's first introduction to railroad capitalization, the wide range of capitalization seems inconsistent.² In a few corporations, it is undoubtedly inconsistent,—it is a legacy bequeathed by promoters with opulent optimism, who sold bonds at large discounts on the basis of future earnings which were fairy dreams, or the properties were over-capitalized to enhance the promoters' profits. The differences in the capitalization of the railroads are justified on the basis of the differences in physical variation. Many of these conditions have already been referred to, such as the differences in construction, etc., required

¹See Morris and Essex Extension Railroad (*Moody's Manual*, 1917, p. 1327).

²A comparison of the capitalization of railroads in the United States with the capitalization of English railroads will be found interesting because of the difference in the accounting methods: See W. E. Lawson, *British Railroads* (1913), chaps. i and ii.

by the variation of territory traversed. Some systems have made great outlays upon road beds, the reduction of grade crossings, etc., by which they have greatly reduced operating expenses and their capitalization is too small.¹ A few systems have as many as four tracks on a part of their mileage, and therefore have a very much higher cost of construction account than does the road with a single track. The difference between the investments of a railroad such as the Pennsylvania, which owns exclusive terminals, and a railroad which does not, is often sufficient to justify these differences in capitalization.

One railroad might have a much larger capitalization than another, yet the burden of the carrying charges of this obligation be less than that of a railroad with a smaller capitalization; i. e., a corporation can borrow a larger amount if it pays 4 per cent instead of 5 per cent, and still be carrying the same interest charge. Some of the railroads which issued long tenure bonds at 3 per cent will, as a consequence, be able to continue carrying a very much larger capitalization than railroads which will be required to refund a large portion of their funded obligations in the next few years. Consequently, without a close examination of the tenures and interest rates of the funded obligations, a study of a railroad's capitalization is incomplete.

With the necessity of increased charges, railroads will be forced to increase their incomes. Efficiency will, no doubt, yield some increase, but the larger part must come from an increase in earnings. It is the relationship of the latter to the capitalization which tells the ultimate story of the safety of return to the investor. Other things being equal, the railroads with larger capitalization will give a smaller margin on funded debt and vice versa. Fixed charges on the road's mileage should not take more than one-third to one-half of the net returns from operations.² While some parallelism in capitalization should exist among systems operating in similar territories, this form of measurement allows for elasticity without sacrificing the in-

¹Frederick A. Cleveland and Fred Wilbur Powell, *Railroad Finance* (1912), p. 45. These authors state that in most instances the original capitalization of railroads was inadequate.

²For a complete discussion of this subject see previous chapter.

vestment position of the securities. As long as property investment is represented back of capitalization, it makes no difference to the investor whether the capitalization is large with high earnings or the capitalization low with small earnings, when the relative margins above the fixed charges are equivalent. For of what value is a low capitalization if income furnishes inadequate margins to fixed charges?

It is apparent from this latter that the proportion between borrowed and proprietary capital would be a determinant in the safety of the bonds. Even if the capitalization were high, and the proportion of bonds low, the bonds could occupy a strong position. On the other hand, if a very large over-capitalization were represented in the capital stock issues, the general credit of the company would be affected and the value of these stocks would always be subject to a possible discount in the valuation by some Public Service Commissions. The market position of railroad stock under these conditions will force the railroad to market its new stock at a large sacrifice, and this in turn, will force the issuance of bonds. This will destroy the enviable rank of the bonds, and the corporation is penalized for the over-issue of its capitalization through capital stock. The result is a further weakening of the railroad unless the added improvements give a larger relative earning power. Roads, however, which have a healthy capitalization and a large ratio of stocks to bonds and which have persisted in adhering to this principal in new issues, have a much better credit position than the company with a large ratio of bonds. This, of course, assumes that the railroad has low rental charges.

CHAPTER XVII

RAILROAD EQUIPMENT SECURITIES

The Origin.—Equipment obligations grew out of the necessity of weak railroads to secure funds by other methods than those ordinarily used in floating fixed obligations. Under the handicap of a large debt, embarrassed railroads could not secure funds for the purchase of equipment through the use of the general mortgage. No investor was willing to purchase a weak railroad's bonds or notes, whose tangible security depreciated in fifteen years or less and was junior to all existing funded debt outstanding at the time of issue. This condition necessitated the creation of an equipment obligation which could be separated from the other funded indebtedness of the railroad. Out of this necessity, a new form of security originated in the late sixties.¹

While this plan of financing in the beginning was used only by encumbered railroads,² it was not long before it was recognized as a sound method of financing for all railroads in providing their equipment requirements. With the separation of the equipment obligations from the other funded debts, railroads are not required to place an extraordinary burden upon current earnings of any one year. Not only is the burden of the fixed investment reduced, but the distribution of the maturities reduces the interest charges and enables the railroad to retire the obligations out of current earnings before the rolling stock is extinct. The growth in the amount of equipment securities as compared with the growth in mileage and tonnage

¹The American Bar Association records a form of equipment obligations as early as 1845 of the Schuylkill Navigation Company. (F. Rawle, *Acts Relating to Car Trusts in Force in Various States* (1893), and Amer. Bar Assn. Rep. 322 [1855]. See also *Commercial and Financial Chronicle*, vol. lxi [1896], p. 259).

²W. Z. Ripley, *Railroads Finance and Organization* (1915), p. 171.

is significant of the importance that railroads have attached to this method of financing.¹

The plan used in the issue of equipment securities bids fair to play an even more important role than hitherto in security issues. The use of these securities is now being extended to the financing of machinery and equipment of industrial organizations though other public utilities have used these securities in a small way for some time. But certain uses are being made of these securities for industrial issues which are unwarranted and if continued will destroy their enviable position.

While the high character of the railroad equipment securities has been fully appreciated, there are possible dangers in the competition which may arise between underwriters who are willing to take more questionable risks. While the rate of return and methods of payment will no doubt remain the same, the duration will probably be extended and the amount of the equities securing these obligations will be lessened. This tendency has already appeared in some types. Conservative bankers fully appreciate this condition and are correspondingly more careful in their own selections.²

Classification.—There are strictly speaking only two types of equipment issues which are based upon fundamental differences. The first and oldest of these issues, the car trust certificate, was created, as already stated, to overcome the legal obstacles in priority of liens. The second fundamental type of

	¹ Amount of Equipment Securities	Per cent increase over previous year	Miles of Railroads	Per cent in- crease over previous year	Per cent increase capital- ization
1890	\$49,000,000		167,191		
1900	60,000,000	22.4	198,964	18	33
1905	200,000,000	233	225,196	13	20
1910	350,000,000	70.0	249,992	11	34
1915	400,000,000	14	270,000	8	6

(The period from 1915-1920 would not be typical and is not included in the table.)

²Because of this possible later development and the great complexity of these issues, more space is given to the discussion of these securities relative to railroad bonds in general than probably would seem to be warranted. The conditions referred to, however, seem to justify this extended treatment.

these issues is the equipment bond which is based upon a conditional sale. The car trust bond while frequently used is not clearly a distinctive type, though it does vary in the detail of issue as explained later.

The plan under which the car trust certificates, commonly known as the Philadelphia plan, are issued, has become quite well standardized. The railroad enters into a contract for equipment with a manufacturer and makes an initial payment on the stipulated equipment without receiving other evidence than a receipt for such payment; that is, no title¹ has been acquired to the equipment by the railroad. When the equipment is ready for delivery, a formal agreement is drawn between the manufacturer and an individual, an association, corporation, or a trust company.² Then one of the latter leases the equipment to a railroad.³ The lease is then assigned by the individual, association, corporation, or trust company, to a trustee, and interest bearing certificates of "beneficial interest in the association" are issued and sold to the public, and the proceeds are used to pay the manufacturer.⁴ The title to the equipment remains with the trustee for the benefit of the shareholders until all obligations of the issue have been paid.⁵

¹While there are few cases affecting these issues the courts seem to have fully approved the fundamental principle underlying the car trust certificates. (See F. Rawle, *Acts Relating to Car Trusts in Force in Various States* [1893].)

²The nomenclature for these securities lacks proper standardization, and some features are included in certain types of issues which were not formerly used. More often attempts are made to insert new conditions or modify the two existing standard forms of the car trust certificate and equipment bond.

³It is not uncommon for the purchaser of the equipment to form the association which purchases the equipment or at least to be represented on the association formed by the manufacturer, the railway company, or even the underwriting bank. The American Investment Bankers Association has declared itself against this practice.

⁴An excellent statement of the procedure of the issuance of car trust certificates is given in the *Commercial and Financial Chronicle*, vol. lxxxii (1906), pp. 361-363 and 839-841. See also A. S. Dewing, *Railroad Equipment Obligations*, *Amer. Econ. Rev.*, vol. iii (June, 1917), p. 353.

⁵The Investment Bankers' Committee on Equipment Securities in its report to the General Association in commenting on ownerships states:

"In addition, various schemes have been prepared by which individuals or car companies acquired cars from time to time for the uses of a particular railroad, arranging for leases of the same to the railroad and thereafter selling equipment leased certificates to bankers. Although this practice has become quite common, these arrangements are open to

The exemption from taxation in certain quarters also has had an important bearing on the issue of these securities. In Pennsylvania, for example, they are exempted on the ground that they represent a partial ownership on the part of their holders. There is now, however, doubt on the part of the best legal opinion, as to whether the question of taxation on these securities has been fully adjudicated. Particular care must be taken in every instance that the issues represent physical property and the payments in the underlying instrument are made payable in "rentals" and not "interest." As the trustee is always relieved of any obligation by the indenture, the payment of these costs, if they arise, always devolves upon the railroad. Even if this obligation is not assumed in the agreement, the practice has been for railroads to pay all such obligations, regardless of the shareholder's residence. Because of this practice any references to the assumption of such obligation have generally been omitted in the trust deeds of Pennsylvania organizations.

These certificates¹ are usually further guaranteed as to prin-

question on the ground that these individuals are usually either the railroad itself in a different form, the stock of the car company usually being owned by the railroad company and the individuals being agents of the railroad company and not representing anybody else.

"We do not refer here to the so-called form of equipment trust issued under what is commonly known among bankers as the Philadelphia plan, but to certain other forms of trusts in which individuals appear as lessors."

(*Proceedings of the Third Annual Convention of the American Investment Bankers' Association* [Phil., Nov., 1914], pp. 40-41).

¹Formerly additional warrants were issued in conjunction with the lease, but they are now considered unessential, and have been superseded by the endorsement of the car trust certificates by the railroad. And it may be said that most of the legal changes which have been enacted to protect the trust-certificate-holders have had little effect on the original purpose of this security. Also, no statutory recognition was formerly made of conditional sales of personal property. All personal property had to be recorded either in the township or county where found. For, if the equipment were found in a locality in which it had not been recorded, any creditor in that locality would have had prior claim to the equipment claimants. And any separation of a railroad's funded debt from its equipment obligations that left the title to the equipment's ownership with the railroad was also impractical. Equipment security-holders under such an arrangement were still subject to all prior claims. These difficulties have now been largely overcome by modifications of the law which dispense with the innumerable registrations that formerly made the conditional sale impracticable.

capital and interest by the railroad company. But this guarantee has never resulted in any financial benefit to the owners of equipment certificates. As long as the holders of these securities have prior claim to the rolling-stock, the real test of any guarantee is receivership.

The question as to whether car trust bonds can be classed as a distinct type of issue has already been raised. Their use, however, seems to warrant a statement concerning their characteristics. The car trust bond differs from the car trust certificate in that the car trust bond is a mortgage on the lease—*i. e.*, a direct obligation—whereas the car trust certificate represents only a “beneficial interest in” the lease assigned to the trustee. Though technically this distinction must be made between the car trust certificate and the car trust bond, in practice it is seldom made. Neither is the distinction very vital financially, as the security of both classes of obligations rests ultimately upon the ownership and lease of the rolling-stock.

The equipment bond or equipment note,¹ the most modern of these issues, is a direct obligation of the railroad. After the specifications of the equipment and the terms of sale have been agreed upon, the railroad company makes an advance payment, usually from ten to twenty-five (more frequently ten) per cent of the cost of the equipment. Under this agreement, a conditional sale is then made to the railroad, and bonds or notes are issued under authority of the trustee to complete the payment for the equipment. These bonds or notes are a direct obligation of the railroad and a first mortgage on all equipment purchased under this agreement. But the title for the benefit of the security-holders is vested in the trustee until all the bonds or notes and all of their attendant expenses under this agreement have been paid. The payments of these securities, as in the car trust certificates, are usually made in serial form. If the payment is in the form of a sinking fund, which is rare, the adjustment is similar to the settlement of any mortgage bond.

¹The plan under which these issues are made is commonly known as the New York plan. Why it is called the New York plan no one has been able to explain.

Trust Deed.—As stated in the description above, these securities involve three parties. In the issue of the equipment bond the manufacturer makes a conditional sale to the railroad, which issues a direct mortgage on the rolling-stock purchased and then assigns the chattel, securing the bonds to a trustee for the protection of the bondholders. In the issuing of the car trust certificates and the car trust bonds, an association is formed. The security of the latter is a mortgage on the lease of the rolling-stock that is assigned to a trustee, while the car trust certificate is a certificate of participation in the association. In both forms of issue, the leasing organization must be distinct from the railroad company. The procedure is also the same if a corporation, individual, etc., acts instead of the association.

The first and most important problem of the trust deed in equipments is to determine whether the title to the equipment is properly vested in the trustee. The Investment Bankers' Association has so completely covered the underlying requirements of the proper vesting of title in the trustee that the form of indenture suggested by a committee of this Association is given in full in Appendix B.

While the technical form of the indenture is somewhat different in each case, the fundamental requirements affecting the rolling-stock are much the same. A cash payment of 10 per cent or more of the value of the equipment is required, and securities are then issued against the balance, and secured as before stated. A name plate indicating the trustees relationship to the title in the property must then be placed on each piece of equipment, and no other claimant's name can appear during the life time of the security except the name of the railroad company. The latter is also obligated to report annually or semi-annually as to the number, size, service of equipment, the amount destroyed, and the number substituted and undergoing repair, which are subject to the indenture. The railroad, also, must keep all rolling-stock insured and in repair, pay for all taxes, provide for the regulation of all patents and safety devices, and for all outlays or reasonable expenses made by the trustee. The trustee is not liable except for neglect, and is usually required, on default of any payments due, to seize the

equipment after a stated period, usually thirty days. The written consent of a certain percentage, ordinarily 50 per cent, of the security holders must be had to give the trustee the authority to take action. Anything less than 50 per cent is questionable. A large institutional holder of an equipment issue recently refused to accede to certain requests until reminded that 25 per cent of the holders could authorize an action. Normally, it is not the part of wisdom to allow such a small ratio to determine action on this kind of a security.

If the railroad has purchased equipment on conditional sale, all the provisions found in the lease of the car trust certificate and trust deed are found in the trust deed of the equipment bond, as the lease in the strict sense does not exist in a conditional sale. In the latter, direct semi-annual or annual interests payment, and in the former, the rentals are so apportioned that, when the last payment falls due the whole obligation has been cancelled. The essential safeguards in well-drawn instruments of either class are practically the same, varying only in the technicalities peculiar to the respective instruments.

Duration and Terms of Payment.—The standard period of equipment securities has been ten years. The Pennsylvania Equipments, which fell due on September 1st, 1914, with a tenure of twenty-five years, and the Bessemer and Lake Erie issues of twenty years are the exception and not the rule. Since 1907 the Chicago, Rock Island and Pacific Railway, the New York Central Lines, the Lehigh & New England Railroad, and a few other systems have issued fifteen-year series. Whether the fifteen-year maturities will be substituted for the ten-year maturities, it is yet too early to determine. The wide margin of safety that these securities have possessed under the ten-year period has been the large factor in contributing to the high character of these securities. But to condemn an increased duration upon this basis is hardly justified.

Serial payments have, with a very few exceptions, been such a fixed part of the method of issuing equipment securities that it has never seemed necessary to give this question any consideration. The adoption of the serial method of payment in the early issues was not a matter of choice on the part of the weak

railroads, but a requirement arbitrarily demanded by the lenders, because of the short-lived equity. Whether this method of repayment will be continued with the change in the character of equipment and the shifting to other methods in financing other fixed property, is open to question. With an asset which depreciates so rapidly, the safest and cheapest method is to increase the equity behind the securities at an increasing ratio to the longer maturities; otherwise, the cost of financing will be too great.

When the investment of the sinking fund is limited to certain uses or investments, the company's credit is strengthened, but it does not necessarily affect to a corresponding degree the strength of equipment issues. Further, if the sinking fund is held in the form of a savings bank deposit, it will yield only 3 per cent, and companies are not willing to sacrifice the higher rate obtainable in the other forms of investments. The experiences of the past have shown that where the sinking fund existed in the form of cash deposits, the temptation to use this cash for other than its original purpose has always been greatest with the systems in a questionable financial position. And these systems have always misused their sinking funds when these reserves should have been most carefully protected. The method of administration and character of investments must always be the real tests of a sinking fund. The sinking fund experience of early American railroads will never be repeated in the same promiscuous fashion, though it is unreasonable to expect a railroad having a reserve not to use these funds, when it finds itself in a strained position. It is obvious that the restrictions safeguarding such a reserve are the real test of the worth of a security. There have been times in the history of the majority of American railroads when it was essential to borrow in order to maintain a sinking fund. Sounder financing would have demanded the temporary suspension of the sinking fund, for the necessity of borrowing in order to maintain a sinking fund ultimately increases the total amount of the debt.

Physical Factors of Equipment.—The rapid obsolescence and deterioration of equipment have made it difficult to establish an absolute and common standard of measurement that could be

applied to all railroads. The relative improvements in rolling-stock have been much greater than in road beds, terminal buildings, etc. Locomotives which ten years ago were built for fast passenger or heavy freight traffic are now used only on branch lines. Obsolescence, as pointed out under "Depreciation," may become the most important factor in a consideration of the value of the equipment underwritten. This suggests the necessity of a careful examination, not only of the model and capacity of all equipment, but also of the respective distribution of coal-cars, passenger-cars, locomotives, etc., securing an indenture.

If, for example, the safest security of the principal is demanded, locomotives should not constitute a very large percentage of the security. Not only have the improvements been much greater on locomotives than on other rolling-stock, but the effect on operating costs and earnings has been relatively much greater. The present articulated Mallett compound engine, for example, is capable of drawing twice the load of the old single expansion locomotive. With the increased tractive power, the mere numerical strength of a railroad in locomotives may be entirely misleading. An actual decrease in the number of locomotives has taken place relative to the growth of tonnage on the heavy freight roads.

The efficiency of a railroad is dependent, not only upon the capacity and tractive power of its locomotives, but upon their adaptability to the needs of its traffic. A system which is largely a coal carrying road or has heavy grades or great density could of necessity demand a large number of locomotives of high tractive power. But great tractive power in locomotives means lessened speed, and makes them less efficient for passenger and fast freight services, which demand low tractive power and high speed. Even with the great trunk-lines of the United States, which demand a wide variety of equipment, each system will usually demand that a majority of its rolling-stock be of one type. Any other policy than that of the adaptation of equipment to traffic needs must affect the operating efficiency. And any valuation of locomotives which takes no recognition of this fact must always be in error.

Mere numerical comparison of cars, even of the same kind,

may have little significance. They will differ not only in capacity, but in original cost, in repair expenses, in their length of life, and in the uses of the equipment. The problem of efficiency in car service is much the same as that of locomotive—one of adaptation to the needs of the system. To have too large cars is just as costly as to operate too small cars. It is also uneconomical for a railroad that has heavy or dense traffic to possess many cars that cannot be loaded to the fullest capacity, and vice versa, for light-weight traffic.

A few facts concerning changes in car equipment verify these contentions. The average capacity of the ordinary box-car in 1920 is about three and one-half times what it was in 1870. The wooden box-car of a decade ago is now being rapidly displaced by the under-frame steel or all steel car, and from 85 to 90 per cent of the freight cars now built are of either the last two classes. The new steel passenger day-coach has increased its carrying capacity over the old wooden coach approximately 100 per cent. With the increased use of heavier material, the dead weight has also materially increased. In a steel de luxe passenger train, the weight of the passengers is extremely small as compared to the total weight of the car. The steel under-frame box-car has increased on the average about 100 per cent in carrying capacity and 50 per cent in dead weight over the old wooden car.

*Depreciation.*¹—Any statement bearing upon depreciation can be only an approximation. But, an approximation of depreciation is adequate, if a sufficient margin is allowed between the last payment of the principal and the final extinction of the obligation. By the semi-annual or annual cancellation of a proportionate amount of the principal above the margin allowed, original equity is thus more than maintained during the life of the outstanding securities.²

With normal usage and proper upkeep of the equipment, the equity of these bonds, theoretically at least, increases with

¹See the Master Car Builders' Association Manual for details of depreciation allowances.

²See various briefs of the Interstate Commerce Commission on Valuations.

each payment of the principal. While the actual depreciation of the equipment will be less in the first year of its service, the sale price must be more than correspondingly discounted, as rolling-stock which is once put into service can be marketed only as second-hand goods. But the sale price of equipment, compared with its operating value, toward the end of the life of the equipment would relatively be discounted at less than during the second year's use of the equipment. On the average, if the terms of the indenture have adequately provided for the protection of the equipment, and the trustee has enforced these requirements, a sufficient sale price could undoubtedly be secured, if the railroad went into insolvency, to pay the remaining bonds in full. If the old term of ten-year bonds is continued, with the increased use of steel in equipment, the equity will become correspondingly greater toward maturity. This advantage may be offset by an increase in the term of the bonds.

The number of variables is too great to establish any other than an approximate average. But for all practical purposes the average depreciation is sufficient to determine the equity against outstanding bonds. Depreciation will vary not only between different roads, but with the same road at different seasons of the year. The density and character of traffic, the nature of the roadbed and topography of the country, the size and the amount of rolling-stock, the character and age of the equipment already owned, all must be determined before a correct measurement or comparison of depreciation or maintenance can be made.¹ The Interstate Commerce Commission since 1907 has required that depreciation be written off annually.

Maintenance and Renewals.—The Interstate Commerce Commission under the 1920 Federal statute² is forced to maintain specific rules governing the maintenance charges of the rolling-stock. All trust deeds or leases require that the railroad shall maintain all equipment, but these instruments usually do not state the amount. If any stipulated allowance is made, the Master Car Builders' Association rules are used which put a

¹Arthur S. Dewing, *The Financial Policy of Corporations* (1920), vol. i, p. 101 seq. footnote.

²Federal Law of February 28, 1920.

specified price upon each part. The indenture or lease also requires that if any rolling-stock is sold or destroyed, it must be replaced. The latter, of course, is covered by insurance. But, even when these allowances are made, any single standard cannot be used for comparative purposes.

Experiences similar to those of the Illinois Central Railroad indicate the necessity of close scrutiny of maintenance. While fraud, as in the "farming out" of the Illinois system in 1909-10, is very rare, the greatest waste may occur under this item. Much the same variables which affect depreciation affect maintenance cost, and in any comparative analysis of maintenance costs, the same data and same variables must be used. For illustration, it is very obvious that if a company has a considerable amount of old rolling-stock when new equipment is added, the maintenance cost must be disproportionate to that of a road having a large amount of new equipment.

The age of equipment has a more important bearing upon the cost of maintenance than any other single item. Some of the large packing companies have found it more profitable, after a car is ten or twelve years of age, to dispose of it and purchase new equipment, because of the high maintenance charges after this period. In one class of refrigerator-cars, prior to 1914, for illustration, the charges ran as follows: for the first five years, \$40; for the second five years, \$110; for the third five years, \$120.¹ The life of these same cars was estimated at fifteen years with a salvage recovery of 10 per cent of the original cost.

The degree of care with which train crews operate on different systems has been found to materially cut or increase these costs. This, of course, does not account for the variation in wear and tear caused by the differences in road beds, amount of rolling-stock, topography, character of traffic, etc. If a considerable amount of a railroad's equipment is rented, the maintenance charge will be deceptive as a criterion of the road's condition, as no part of the rental is charged to this account but must appear in the account of the owner.

¹From a confidential report based upon a private investigation of a large corporation.

Insurance.—All trust deeds require that all equipment be insured. The amount of this insurance is usually left either to the railroad or to an agreement between the railroad and the trustee. A few trust deeds stipulate that the amount shall be a stated rate of the valuation placed on equipment by the Master Car Builders' Association. A great deal more emphasis has been placed by the average laymen on the importance in the trust deed of insurance than is really warranted. Rolling-stock is always widely scattered and the destruction of any large amount of the equipment securing any one issue is highly improbable. The factors governing the amount of this insurance would be determined as follows: first, the percentage of the equipment under the indenture to the total equipment of its kind; second, the average percentage of equipment destroyed by wreckage, fire, etc. (To assume a greater insurance charge than this would involve a useless expenditure for the road.) This risk would not average more than 10 per cent during the life of the equipment, and a 20 per cent risk would give more than an ample margin for all losses.

Investment Position.—A great deal of unwarranted prejudice has existed among certain investors against equipment securities. This can be largely attributed to the risk of a security which is dependent upon a property that deteriorates as quickly as rolling-stock. When, however, the legal safeguards of equipment obligations which protect the shareholder are thoroughly understood, this opposition is soon changed. Because of this misunderstanding several state legislative requirements for legal savings have excluded equipment obligations as a form of legal investments. In consequence, many of the small trust companies, savings banks, and trustees have also been influenced to refrain from purchasing equipment obligations. This situation has been especially true of car trust certificates. A small New York State banking house during the summer of 1914, following the outbreak of the European War, requested a friend at the head of a certain bond house to replace with bonds the certificates of participation of a large and important issue which it held as a collateral on a loan. The claim of the credit department was that under the peculiarly strained market "no

stock''¹ could be accepted as collateral. It is to be feared that this credit man, considering the strength of this issue, was not very familiar with equipment obligations.

From this standpoint of investment safety and rate of return, no class of securities has enjoyed as enviable a record as equipment securities. From 1880 to 1915 no losses are reported, though a great number of railroads which had equipment securities outstanding did go into receivership.² Equipment securities have necessarily been given precedence because of a railroad's need of equipment to continue business. A bankrupt railroad would find it not only more costly to secure funds, at frequent intervals, for new equipment, but probably impossible. The best expediency for the railroad has always been to fully safeguard the equipment security holder.

In a few cases, as the Norfolk and Western (1896) and the Denver and Rio Grande Railroad (1886), the security holders were not paid in cash, but were given bonds in partial settlement. These securities, as in all the other instances of similar adjustment, eventually rose in price, so that, if the security holder had desired to dispose of his holdings at the increased price, a considerable profit would have been realized over the original principal of the equipment security holdings.³

While it is common practice for the railroad to make a guarantee of the principal and interest, these guarantees do not add much to the value of equipment securities. A guarantee of the issue of a subsidiary company, however, made by a parent road, may prove of value; though, even here, if the issue is properly made and secured the guarantee is of little consequence. In a few rare instances, the manufacturer of the equipment will

¹The stock certificates referred to here were the car trust certificates.

²The Guaranty Trust Company in its little book on *Railway Equipment Obligations* gives a long list of railroad reorganizations in which equipment obligations were not disturbed.

In two instances of receivership the holders were obliged to take over the equipment and resell it but without loss. These railroads were the Buffalo and Susquehanna Railway and the Detroit, Toledo and Iron-ton. Both of these issues were not carefully drawn.

³The only compromise of an equipment issue, known to the author, is that of the Wheeling and Lake Erie Equipment Sinking Fund Gold Bonds. The conditions under which the issue was originally brought were unwarranted in the light of the condition of the railroad.

make the guarantee. A very considerable number of issues are also subject to redemption at a slight premium, usually, ranging from 1 to 3 per cent.

The convertibility of these securities varies directly, as the strength of the railroad, and indirectly, as the term of maturity. Equipment securities of three years and less possess a high degree of convertibility. The longer maturities possess about the same convertibility as other funded debts of equal duration. When the price of the short maturities equals that of good commercial paper, there is always a strong demand by the banks for these securities. When equipment obligations are more widely understood by investors, the maturities acceptable to the banks will be increased and the degree of convertibility of the already accepted maturities will also be greatly increased. This will make the equipment obligations more highly desirable both for banks, and for the surplus of any business.

CHAPTER XVIII

STREET RAILWAYS AND INTERURBAN TRACTION COMPANY'S BONDS

History—Urban Companies.—The early development of urban traction systems had little in common with urban transportation systems of today; consequently, from their history no lessons of value can be drawn that will assist the student in the study of the present street railway securities. In less than thirty years, urban and interurban transportation have passed from the cumbersome and slow moving horsecar to the electrically propelled car which, in the passenger express service of the interurbans, compares favorably with the modern railroad. The short life of street railway equipment and the rapid succession of electric improvements and inventions have made this phenomenal development possible. Even where equipment has not fully deteriorated, it has often been profitable to throw it into the junk heap, because of the superior efficiency of the new. The growth of new business, both through the increase of population and the growing habit in the use of public utilities, has made this possible. In the purely speculative and badly managed properties, results have been less desirable and over-capitalization has accumulated. However this would have probably resulted in any properties so managed.

The first street railway of commercial importance began with the so-called "John Mason Cars" on Fourth Avenue, New York City, which ran on cleats nailed to the paving blocks. The cable cars, the next form of local transportation in a number of cities, were first introduced in San Francisco in August, 1873. This system gave promise for a time of dominating where traffic was dense enough to warrant the outlay, but its experience for the country at large did not last beyond a quar-

ter of a century.¹ Electric transportation, which has since supplanted all other systems of street railway transportation, was extremely slow in being recognized. The earliest effective commercial laboratory experiments in electric transportation began about the time of the introduction of railroads, but it was not until fifty years later that the use of electric cars could be called a success. With the experiments of Stephen D. Field and Thomas A. Edison in the early eighties, electrical transportation began to assume the definite modern form of locomotion. Messrs. Edward M. Bentley and Walter H. Knight of Cleveland, Mr. John C. Henry of Kansas City, and Professor Sydney H. Short of Denver, and especially Charles J. Van Depolle, all simultaneously added to the perfection of the overhead trolley system. But the establishment of the trolley system in Richmond, Virginia, by Frank J. Sprague in 1888, probably marks more distinctly than any other attempt, the definite commercial introduction of the modern electric system.

By 1890, one-sixth of the street railway mileage of the total 10,868 miles in the United States was equipped in whole or part with electric motor power. In 1917, this mileage had increased to 44,676 miles, with 11,304,660,462 revenue passengers or more than five times as many revenue passengers as in 1890, and an increase in gross revenue from approximately ninety million dollars of gross income to more than seven hundred and nine million dollars in 1917.² The cost of construction and equipment now exceeds five billions, which, if it yielded six per cent, would give an approximate return of \$300,000,000 to the investing public. Though these figures in and of themselves may seem to have no direct bearing upon the subject of investments, they show the growing financial importance of this channel of investments and the increasing equity of these securities.

¹Thomas Commeford Martin, *Street and Electric Railways, U. S. Bureau of Census, Special Report on Street and Electric Railways, 1902, p. 159 (1905).*

²This figure has, no doubt, been somewhat exceeded at the time of this publication, but this is the last authoritative statement that can be made. All the above data are taken from the *United States Census Bulletin (1917). Census of Electrical Industries (Street Railways, Printed 1920).* These censuses are made every five years, but two or three years elapse before they are published and, consequently, they are only of historical value.

On the other hand, street railways are relatively new, and their probable vicissitudes have not been fully measured, so that the same exact conclusions cannot be made for street railway securities as are possible with many other public utilities discussed in this volume. Electric-light securities, though equally new and possessed of many complications, can be subjected to the more exact analysis essential to an accurate guide to securities. The problems, however, involved in street railway operation and financing are more complicated and must always be so. Through the efforts and guidance of such organizations as the American Street Railway Association and its Bureaus, scientific information is being collected which will be invaluable in street railway security analysis.

Consolidation With Other Public Utilities.—The combination of the electric-light plant and the power plant supply is not so essential in a large city as it is in the smaller cities, because the business is sufficient to warrant independent operation. In a number of smaller cities, unity of the power supply is almost imperative, if an adequate and continuous profit is to be maintained. This has been offset in some cases by the ability of the small companies to obtain cheap current supplies from large hydro-electric power companies in the vicinity. When either of these conditions is absent in a very small city, investment in street railway properties becomes questionable, except under special or peculiar conditions that require adequate and detailed explanation. In the larger cities, the economies brought about by the united operation of all electrical properties, when properly regulated, ought to result in better service, and cheaper rates and greater profits. Where combination is prevented by state or local statutes, repeal of the statute would undoubtedly encourage such unification to public advantage.

There has been another aspect which has frequently been created in these consolidations, especially the earlier ones, in the excess price paid for properties in order to secure control. Many of the properties were taken over at over-estimated valuations. The interpretation of these early consolidations and mergers of street railways themselves, which are still a menace to some systems, is exceedingly well put by Mr. Doolittle of the

American Street Railway Association—it might be incidentally stated that over-capitalization has had its greatest abuse in the past in urban and interurban traction company organizations.

“The consolidation or merger involved in the purchase of the separate lines for cash or securities frequently in amounts in excess of the cost of obtaining franchises, expenses of promotion, and the cost of physical property. The basis of acquisition was the value of the owners rather than costs, such value being calculated upon the supposed advantageous location of lines and probable future earnings. In many instances, the process of consolidation was hampered by the efforts of the owners to capitalize a ‘nuisance value’ which they had endeavored to create. Not only did the cost of the consolidated system include the duplication of investment in property, a large part of which was obsolete, and discounted future earnings, but the consolidated company also had to assume such contracts, leases, or other obligations as the predecessor companies had undertaken. It is certain that if electric traction could have been developed when urban transportation systems were first needed, and public officials had recognized the advantages of a public policy of regulated monopoly rather than competition, substantial investments made in the actual process of growth of urban street railways would have been avoided.

“The novelty of electric traction in its early life afforded a false stimulus to the industry and fostered erroneous ideas as to the future earning power of such systems. Because of this, frequently the obligations assumed in consolidation were burdens under which the systems could not profitably operate. High cost of consolidation or reorganization, over-extension, changes in business conditions, and depression were among the chief causes contributing to the weakened financial position in which many companies soon found themselves. Relief was sought from these conditions in receivership litigation, which involved considerable time and expense.

“With the development of the community and the growth of the traction system, there have come many items of capital investment which are unproductive in their nature.¹ Compari-

¹ “The evidence before the board would seem to indicate that burdens have been thrown upon this company faster than the increase in traffic justifies. * * * If it be true that the metropolitan community is loading upon this company burdens which it cannot bear, the community is not only unwise in its own interest, but it is committing an act of rank injustice towards the 6,000 shareholders who have come forward to supply capital amounting to \$25,586,828, including premiums.” *Second Annual Report of the Public Service Commission of Massachusetts*, 1914, vol. i, pp. 440, 441.

sons of the relation of added dollars of invested capital per dollar of added gross earnings of several urban systems in recent years disclose the magnitude of these unproductive capital expenditures, many of which have been due to onerous municipal requirements."¹

Population Distribution and Its Effect on Traffic.—The first factors to be analyzed in a study of street railway securities, consist of the number, growth, riding habits, and distribution of population, together with the character of the city. The importance of these factors and the minute study of their relationship cannot be over-emphasized, because it is upon these factors that revenue is dependent. Whether the city is strictly commercial and industrial or is located in an agricultural region, determines both the required movement of the population and the necessity of the use of traction facilities. The demand for transportation will also often be greatly increased by the topography, as well as the physical structure of the city. On the other hand, the topography of a small-sized city has frequently made both the cost of construction and operation so high that the margin of security is too small to warrant freedom from accident. A few years ago a bond house refused to underwrite a bond issue for a street railway, because it was located in a town with precipitous hills, and the trolley company had no automatic brake devices for preventing accidents. One serious accident would either have made very heavy inroads upon the year's profits, or have placed the company in receivership.

In the sale of certain street railway securities considerable stress has been placed on the growth of the city. Future estimates given in bond circulars are always based upon the past rate of growth. Statistical evidence indicates that after a certain point in the development of the average city has been reached,² "the population increases at a decreasing rate of

¹F. W. Doolittle, *Studies in the Cost of Urban Transportation Service*, Bureau of Far Research of American Electric Railway Association, (1916), pp. 12 and 13.

²Bion J. Arnold, *Report on the Pittsburgh Transportation Problem* (1910), p. 139. *The Report of the Chicago Traction and Subway Commission of 1916*. R. W. Toll (*Arca*, October, 1914) Denver Traffic Investigations. This author maintains that cities with a larger ratio of fair-weather will show a smaller proportion of revenue passengers than the average city.

increase." While these conditions will have a more perceptible effect on the appreciation of stock values than of bond values, the tendency where securities have been sold on the assumption of a predicted increase in growth in population, (which prediction is seldom realized) is for bond prices to fall.

With few exceptions of our largest cities, the city with its population largely centralized in a small area, other things being equal, will show less earning power than a city with a comparatively well-distributed population. If all the outlying areas of a city are easily accessible from the business areas, a street railway three miles from the center will tap nine times as great an area as the system only one mile from the center; i. e., the area that can be tapped is squared as the radius of the line is extended. Water front and topographical location usually prevent this simple method of distribution and both a more elaborate system and more rapid speed must be attained to reach the business section of the city which may be located on this water front. But the question to be answered with each individual system is: Is the transportation system in question as efficient in its relation to the distribution of population as is that of other cities operating under similar conditions?

George H. Davis found that with the growth of cities traction companies were forced to haul greater distances; and as the outlying areas were more sparsely settled the burden of cost upon the company was increased to more than a proportionate part of the additional revenue.¹

It cannot be assumed that the same ratio in increase of earnings to the growth of population will occur in the future as in the past. While conservatively managed companies under wisely enacted public utility laws will have a narrower margin, they will have a more certain source of profits. A number of the city railways have reached a stage in their development where an increase of fixed investment in mileage or equipment must be studied with infinite care. With the increasing costs of labor and material and the requirements of public utility commissions to operate on closer margins, it is wholly inad-

¹George H. Davis, Adjustment of American Street Railway Rates to the expansion of City Areas, in *Mid-year Conference of American Electric Railway Association*, January, 1911.

quate for the head of a traction company to assume simply that traffic will increase with population and length of mileage.

The study made by William Mattersdorf of the effect of the growth of population of German cities on street railway earnings is interesting in comparison with the studies that have been made by Bion J. Arnold of American cities. When a number of the American cities have reached the stage of slower development, as the majority of them must eventually do, a modification at least of Mr. Mattersdorf's theory must apply, as it is beginning to do in a few American cities. Up to a certain point, states Mr. Mattersdorf, in the growth of a city (he refers here to German cities) the gross earnings will increase at a more rapid rate than the population, then they will fluctuate, and a marked retarding tendency will be noted in the earnings; *i. e.*, while there is still an increase in growth, the ratio of increase in earnings will be much lower. Mr. Mattersdorf has shown in his compilation of street railways in German cities,¹ that after the "point of saturation" has been reached, there is a "limiting value beyond which there is no increase." "The average curve," he states in another compilation of German railway statistics, "shows that in cities up to 500,000, the traffic increases as the square of the population, but above that, in only direct proportion." As Mr. Watkins has emphasized, even this mathematical increase cannot go on indefinitely. A complete saturation point will eventually be reached.² This, of course, applies only where there has been a steady progressive expansion and not an abnormal one. If the expansion is a sudden one and there is no corresponding increase in car mileage, he further adds, there will be a falling off in traffic density³ until normal conditions return. When this point has been reached, the upward trend of the traffic curve tends toward a horizontal line and other means for carrying population must be provided by subways and elevated railways as in Boston,

¹Dr. Ing. Wilhelm Mattersdorf (Zeitschrift für Kleinbahnen) *Staatliche Verkehrsfragen* (Berlin, 1907).

²See Watkin's criticism of Mattersdorf's theory in *New York Public Service Commission Report, First District*, 1919, vol. iii, p. 30.

³Car mileage and traffic density are calculated by the same method as for railroads. Chap. xiv.

New York, and Philadelphia. Where local conditions cause variations, it is necessary, of course, to determine the character and permanency of these influences that cause the deviation from the general trend.

Mr. Bion J. Arnold states in his analysis of the increase of Pittsburgh transportation that: "a study of the relative growth of population and of transit earnings of the large American cities during the past ten years, shows some surprising results and points to the conclusion that as a rule, the earnings from local transportation increase as the square of the population." If this statement be correct, it means that when the population of the average community doubles, the earnings from transportation may be expected to increase fourfold, provided that the transit facilities keep pace with the demand.¹ Mr. Ashe, in a somewhat different comparison, comes to the conclusion that cities of 15,000 will furnish seventy passengers per annum per capacity up to a constant increase of two hundred and forty in cities of 1,000,000.² Bion J. Arnold showed in his Chicago report from 1891 to 1901 an increase of one hundred and fifty to one hundred and eighty-two.³

Though some variations must necessarily exist as to the detail of the final conclusions in the growth of population and of earnings, it is very evident that all are agreed upon the check of rate of growth in population and the retardation in earnings.⁴ The rule cannot be accepted as rigidly adaptable in every city, but the tendency exists and the variation and causes of variation from the average tendency must be ascertained for the selected case.

Density of Traffic.—The density of traffic, when correctly analyzed, gives the best insight to the profitableness or un-

¹Bion J. Arnold, *Report on Pittsburgh Transportation Problem to Mayor William Magee* (1910), p. 141.

²W. Ashe, *Electric Railways*, vol. ii.

³Bion J. Arnold, *Report on Engineering and Operating Features of the Chicago Transportation Problem* (1902).

⁴*The Report of the Transit Commissioner* (A. Merritt Taylor), vol. i (July 24, 1913), §10, shows a range of 71.4 people per acre in the first mile zone from the city hall, 27.0 in the fourth mile zone, dropping to 9.8 in the fifth and steadily decreasing to 0.5 in the 16th. Other comparisons of New York, Brooklyn, Boston and Chicago are instructive.

profitableness of street railways. Density can be considered from two aspects, the number of passengers to the number of car miles run or the investment per revenue passenger.¹ The first does not consider the number of persons or the length of mileage, but does give us the total amount of traffic on a unit basis. The number of passengers to the number of car miles, gives an indication of the effectiveness with which the system is used.

While an analysis of density will show the general strength, a comparison of traffic densities on street railways is of absolutely no value unless the variations in local conditions are also considered. Distribution and grouping of mileage, size and number of cars, the length of the rides on the different divisions of the system, and transfer privileges given, must be known before any comparisons are justified. If the passengers travel long distances, the total number of passengers per car mile is less. On the other hand, a system on which the passengers travel short distances, and on which the cars are only partly filled but constantly reloaded, would have a large average number of passengers per car mile.² Elevated railway cars are a good deal larger than surface line cars and equally as well crowded during the rush hours, but the average length of the passenger's ride is much longer; consequently, the number of fares paid per mile of track may be even less on elevated roads. The advantages which elevated railways possess over the surface railways which have long hauls are the grouping of trains of cars and the greater speed at which they can run. The effectiveness with which the two latter can be accomplished will determine the number of passengers per car mile. If the proper number of passengers per car mile can be maintained, it is then obvious that the distance traveled will be of no direct importance.

The Bureau of Fare Research of the American Electric Railway Association says concerning the lay-out of the traction

¹D. J. McGrath, *Electric Railway Journal*, May 8, 1915, and July 8, 1916.

²Barclay, Parsons and Klapp, *Report on Detroit Street Railway* (January, 1915), p. 19, shows that mere size of the city may not insure density of traffic, but that the character of the city and its distribution are equally essential.

company and the density of traffic: "Traction lay-outs, aside from their operating significance, determine the proportionate parts of tangible capital investment devoted to track, structures, rolling-stock, power plant, car stations, and other equipment. . . . Where the city is compact and the flow of traffic general and uniform, a considerably smaller investment is required per dollar of gross revenue than in the case of cities in which passengers must be carried long distances and where the traffic originates in one district and terminates with very little local traffic in another district. The length of transmission and distribution system is dependent upon the physical lay-out of the tracks. The expenditures for power, equipment and cars are primarily influenced by the extent of the peak hour service.¹ It is not at all unusual for a company to have service during a period of say thirty minutes of the day in which the requirements are at a maximum, generating equipment four times as great as would be sufficient to handle the business if it were uniformly distributed. The peak load also determines the amount of investment in car and car storage facilities."²

Special Problems of the Interurban.—Though many of the tests used in the analysis of the interurban company are the same as those used in analyzing the urban trolley, there are a number of conditions peculiar to the interurban which must be analyzed quite apart from the urban. The greater part of the interurban systems in the United States have been established since 1900. But so rapid has been their development that they have offered serious competition to the local railroad traffic in a number of localities, as the Nantasket Beach System,³ and the Waterloo and Cedar Falls Railway. A number of short local railroads, unable to meet competition, electrified their right of

¹What is said in detail upon the peak load in the chapter on Electric Light and Power Securities applies equally well to what is referred to here concerning the influence on the peak load. Peak load is defined here as the period of day through which the street railway has its heaviest traffic.

²F. W. Doolittle (Director), *Studies in the Cost of Urban Transportation Service* (1916), p. 8.

³This subsidiary of the New Haven System which electrified this branch in 1895, was probably the first of the interurbans of any size to adopt electrification.

way, though several of the larger railroads, fearing the complete withdrawal of their local traffic, acquired control of competing lines. This was done more completely in New England by the New York, New Haven and Hartford Railroad than in any other district of the country, though these acquisitions have since passed over to the control of another company.

At present, more than two-fifths of the electric railway trackage is outside of municipal boundaries. One may now travel by continuous passage over electric railways from Chicago or St. Louis to Detroit and Buffalo, and the trip can be continued from Buffalo to New York City, with but few breaks. Interurban service has become so efficient under the consolidations of the last ten years, that one may travel from Danville to Springfield, Illinois, and from Springfield to St. Louis by sleeper with the same facility and almost the same rapidity as by railroad. Private rights of ways have been secured, which have enabled these systems to offer real competition to the railroads in rapidity of speed for considerable distances.

The lines in southeastern New York, New Jersey, and Pennsylvania and especially in New England, as Mr. Lawrence Chamberlain has pointed out, have reached the saturation point,¹ i. e., of intensive development. Remote districts have been made easily accessible, and conveyances which were used in reaching railroads have been supplanted by the trolley. This saturation point in interurban traffic also exists in the immediate vicinity of cities like Chicago, Cleveland, and Los Angeles. The trolley, however, by making these remote areas more accessible to the railroads has stimulated the habit of travel, a statement which is verified by the increase in passenger earnings of railroads located in these areas. The majority of strictly interurban systems which have endeavored to secure freight and express traffic in competition to the railroads have been those west of the Alleghenies. This has been especially true of the local and small package freight which constitutes a considerable proportion of all local freight. The systems of Illinois, Indiana, Michigan, and especially Ohio, have far exceeded in

¹Lawrence Chamberlain, *Principles of Bond Investments* (1911), pp. 322-327.

this development, and it has been in these areas that the competition in the longer distance travel with railroads has been keenest. Automobile competition is also becoming more important. For example, Mohawk Valley in New York has suffered from such competition.

Despite the perfection in long-distance through-service, the great majority of interurban traffic is still local. Considerable dispute has arisen among the traffic managers as to whether the now profitable local traffic might not be sacrificed in the effort to increase the long distance traffic. The maximum distance of 500 miles now generally accepted will, in the course of time, no doubt be changed. But evidence seems to indicate the necessity of careful discrimination lest the effort to secure long distance traffic be too costly. Not more than 25 per cent of the traffic of limited cars is made up of trips of more than sixty miles. Many roads do not show more than an average of ten miles, and the experience of all interurbans is that the rural population rides the shorter distances.

The majority of the interurban railways of the United States may be divided into three general geographical groups: first, those of New England, Southeastern New York, New Jersey, and Eastern Pennsylvania; second, those of Western Pennsylvania, Ohio, Indiana, Southern Michigan, Illinois, and Southern Wisconsin; third, those of the Pacific Coast which has three groups centering in Los Angeles, San Francisco, and Tacoma and Seattle, Washington, respectively. A study of the interurban railway map of these three large groups shows that two influences have determined the location of interurban systems in the country. The same geographical influences which governed the location of the towns and cities that these systems connect, also determined the direction which their mileage has taken. Secondly, every important system enters or is in close transfer connection with at least one large urban center, or connects two or three average sized cities.

Whether interurbans are located in a manufacturing, agricultural, or mining region, the necessity of one important terminal is no longer disputed. With the first development of these systems, it was thought by many that the systems in Ohio would

have a very much larger earning capacity than those in adjoining states. The development, however, in Indiana and on the Pacific Coast shows that systems in agricultural regions with important terminals, will be used as much as those in manufacturing centers. Mr. Gotshall, in a lecture at Lehigh University, states in this connection: "It is also a notable fact that the less the population per mile of track the greater will the earnings usually be per capita. In other words, a system operating through a number of large towns will not get as much business from each person in those places as it will per capita from the inhabitants of smaller towns."¹ The Fort Wayne & Wabash Company, even with direct steam competition, does a larger part of the local passenger traffic than do the railroads over the one hundred and thirty-seven miles between Indianapolis and Fort Wayne. The Illinois systems of well-balanced and connected lines which are the most typical of extreme interurban development compare favorably with the Ohio systems.

One's first impression is that the large termini furnish the greater part of the traffic. Within a radius of three or four miles of the city, a park or the suburbs may materially increase the traffic, but beyond this point, the small town and rural population furnishes the greater proportion of the business. Los Angeles, which probably has the heaviest traffic of the interurban systems, is an exception to this general statement concerning the influence of the suburban territory on interurban systems. Los Angeles' suburban districts are unusual in number and extent of distribution, a condition which lengthens the journey as well as extends the density of traffic.

The most desirable location for an interurban is in a well-populated territory evenly distributed rather than in one with an irregularly distributed population which necessitates the operation of empty or partially filled cars over a part of the mileage. Unfortunately, the methods of obtaining these fundamental facts vary so widely among engineers and financial statisticians, that many of the conclusions often drawn from ill-selected facts gathered by inexperienced men are not fundamental.

¹H. C. Gotshall, *Notes on Electric Railway Economics*, p. 9.

Without adequate facilities for entering a city, the advantages gained by profitable traffic through rural districts may be largely discounted because of the charges paid to the urban traction company for carrying passengers to the business center. If the interurban has a single station in a town and must discharge its passengers there, it has no advantage over the railroad system and suffers losses from the lack of development in interurban traffic. On the other hand, the necessity of too frequent stops within a city will cause losses in long distant traffic unless the company's own private right-of-way is secured. An interurban which had a profitable rural business, but was compelled to pay exorbitant charges for trackage rates into a town, was, as a result of this, forced into bankruptcy, and then acquired by the urban company. Where a contract exists that gives an interurban favorable trackage rates within a large terminus, all the terms of this contract should extend beyond the life of the bonds. If the same company owns both the urban and interurban lines, it has an added advantage, provided the urban company does not exist as an independent company and charge the interurban company exorbitant prices for the right-of-way in the city for terminal facilities. However, such a system cannot strictly be called an interurban railway. Careful scrutiny of both terminal facilities and right-of-way charges should be made before proceeding very far in the examination of any interurban property.

The gross income of street and electric railways from their freight, mail, and express business in the United States according to the 1917 census was 3.7 per cent, and from their passenger revenue 92.8 per cent of their total income.¹ If the income from the interurban business could be separated from the urban, this percentage would be very much higher, as practically all of the freight and express business is carried by the strictly interurban systems. Some of the smaller systems operating in strictly rural communities and having no important termini, have a very much larger proportion of freight business. A few companies have added considerably to their income by giving special service for the delivery of fruit, milk

¹*United States Census Bureau of Electric Railways, 1917, p. 73.*

and other perishable goods, and by the so-called merchant-package service.

The opinion of most traffic managers is that interurbans, with a few exceptions, must derive their chief freight income from the local small package and perishable freight for which the shippers are willing to pay higher charges. The limited trunk-line mileage of interurbans, as compared with railroads, will always limit the amount of this freight, for railroads can handle this traffic at cheaper costs. Where the demands for trunk-line facilities are developed, the railroads themselves will doubtless electrify and establish connecting links with the existing interurbans at junction points. Under the present system, trunk line service developed on an extensive scale must necessarily cause considerable losses and disadvantages to the present local traffic. If the heavy freight traffic forms a considerable percentage of the business of a company, there is more danger of affecting the business of the railroad by competition than if its business is merely passenger traffic. If an extension is to be made into new territory, an examination must also be made of facilities already existing and the possible expansion of branch systems, of the number and increase of population, and the character of the products of the territory that will contribute to local freight traffic.

Revenues and Costs of Operating.—The ratio of earnings to capitalization will become increasingly important as regulation of public utilities increases, as it undoubtedly will. Incidentally, however, it is hoped that this regulation in a number of states will have a sounder basis. The tendency of the commissions and courts is to place stress on the relation of rates to the actual investment in properties. Regardless of what the investor may consider an equitable relationship of rates to capitalization, or whether there is any, under present tendencies of regulation, he is forced to recognize the emphasis upon valuation as a basis for rates. Ever since the elucidation of the principle of the relationship between fair rates and fair values, in *Smyth vs. Ames*,¹ it has become an established principle and there has been some attempt at least to secure equitable returns. Custom,

¹*Smyth vs. Ames*, 169 U. S. 166, 544.

however, tenaciously clings to a rate created with the street horse-car, whose tracks were constructed with the outlay of a few hundred dollars, compared with costs now ranging up to six figures. There is no more logical reason that this charge created under these earlier conditions should continue than that the same price paid for a lot in the loop district of Chicago fifty years ago should be asked for this lot today. Street car lines must, for the best interests of the public, always remain a monopoly, but with the restrictions and control which the state or municipality exercises over charges, some elastic and equitable relationship must be made between fares and the cost of construction, maintenance, and operation that will yield an equitable return to the owners.¹ This again is not a plea for the over-capitalized traction companies of which there are a number referred to later. Fortunately, the pressure of increasing prices during the War period and following, has hastened the education of the public to this fact. With some form of elastic adjustment between these two factors, the bonds of conservatively managed traction companies, as a class, should be excellent investments.

The lack of sufficient detailed public information and the wide range of variant conditions affecting this transportation problem make any comparisons of financial operation extremely difficult, and easily subject to erroneous conclusions. The tabulations of the United States Census because of their greater completeness, though entirely out of date when issued, offer the best guidance for general approximations. With these general standards the variations of a particular company can be much more easily explained and interpreted. Even with very complete accounts, comparative studies of street railways will always be subject to much more severe criticism than are the comparative studies of railroads, as street railways are strictly local in character. With trunk-line railroads entering the same general territory, the conditions affecting the transportation problem are so similar in character that it is much easier to standardize results.

¹G. H. Davis, *The Adjustment of American Street Railway Rates to the Expansion of City Areas*, in *Proceedings of American Street Railway Association* (January, 1911), p. 4.

The total operating revenues from street-railway operations in the United States have had a remarkable growth since 1900. The increase shown by the United States in 1917 over 1902 was \$462,271,083. With the same relative growth for the next decade, the income from street-railways should be nearly one billion. The Middle Atlantic and East North Central group of states have shown the greatest total increase, though statistics farther west have shown a large per capita increase. With the increasing tendency toward consolidation, there has been considerable increase in the income from light and power, but as these have not been separated in the census reports, it is impossible to make an accurate separation of these accounts.

The growth in absolute amount is insignificant, except as compared with the increase in the net profit. By the many consolidations and mergers between 1902 and 1912, profits were increased through better utilization of plants, and the savings in administration and operation. From 1912 to 1917 the consolidations or purchases by holding companies were not large, though still very important. This, and the increasing costs of operation, have checked the advantage which was accruing to the traction companies in their large unit operations.

The Income Statements prescribed by the Interstate Commerce Commission and adopted by the American Street Railway Association are the same for urban and interurban railways. These prescribed accounts, however, are rarely followed, as the Federal government does not exercise jurisdiction over intra-state business. Consequently, comparative studies, which are only possible where uniform accounts are followed, are decidedly limited. The chief headings of the divisions in these statements are as follows:

INCOME ACCOUNTS

(Prescribed by Interstate Commerce Commission)
(Only General Headings Given)

I—Operating Income

Revenue from Transportation

Revenue from Other Railway Operations

II—Operating Expense

Way and Structure

Equipment

- Power
- Conducting Transportation
- Traffic
- General and Miscellaneous
- Transportation for Investments Cr.
- Net from Railway Operations

III—Auxiliary Operations

- Auxiliary Operating Expenses
- Net from Auxiliary Operations
- Taxes Assignable to Railway Operations
- Non-Operating Income
- Deductions from Gross Income

IV—Net Income Transferred to Profit and Loss

Except for the sale of light and heat, a very small ratio of the revenue of electric railways comes from other sources than transportation. In consolidated lighting and traction companies in urban centers, the income from lighting is large. In any case, both the revenue and the expense from this source should be clearly separated from railway operations. Too frequently the sources of the income, as well as the expenses of operation, are not separated, and consequently any comprehensive study of these reports is impossible. Even where consolidation of urban and interurban traction companies of any magnitude has taken place and there is a separation of accounts, no distinction is made between the income from the purely urban and interurban properties. In some instances, the separation of these would be difficult, as the rate is continuous, though a well-organized system should provide for such a separation to enable the company to determine the weakness in the operation of its system.

Although approximately sixty-five per cent of the interurbans carry light freight and express, a very small proportion of the gross income from transportation is derived from this source. The electric railways of Illinois, Iowa, Indiana, Michigan, and Ohio far exceed those of any other group of states. The average of these states will range between seven and nine per cent, though one interurban exceeds fifty per cent. Normally this item is not a very large proportion of the gross income.

The standards of measurements in determining the efficiency of earning power in street railways can be applied to interurban

railways, though a different emphasis will be placed on some of the units. Length of mileage and size of the chief terminal rarely show any direct influence upon the operating revenue, but revenues have a very decided tendency to vary with the number and distribution of the rural and small town population.¹ If a company varies from this normal tendency, the reason should be found, to ascertain whether there is the same basis for permanency in revenue as under the established rule.

Other income, as in every income statement, should be added after the deduction of administration, operating, maintenance, depreciation, expenses, etc. In holding companies the income is from the securities of subsidiaries, a fact which necessitates an analysis of all the individual companies. The meagerness of the public utility holding company reports is a common fault, and unless the reader is well versed in the intricacies of financial reports, he will find his greatest danger of error in the interpretation of these statements. Other income from security holdings is usually not large in traction companies, only amounting to between 3 and 3.5 per cent of the total income for all street railways of the United States.

The ratio of the items making up the total operating expense tabulated by the Federal Census Bureau is instructive, though not absolute for the particular corporation.

PER CENT OF DISTRIBUTION OF OPERATING EXPENSES

ACCOUNT	PER CENT OF DISTRIBUTION			
	1917	1912	1907	1902
Operating Expense Total	100	100	100	100
Way and Structure	12.2	13.3	11.3	10.48
Equipment	10.8	11.6	12.5	11.72
Power	17.0	16.1	17.5	16.83
Traffic	0.5	0.81	0.7	0.79
Conducting Transportation	38.7	38.8	38.7	42.83
General and Miscellaneous	13.9	15.1	16.8	17.35
Auxiliary Operations Expenses...	6.9	4.3	2.5	

(United States Census, Electric Railways [1917], p. 79 and Census of 1912.)

¹Mr. Louis E. Fischer, *Economics of Interurban Railways*, pp. 23-28, assumes that the gross revenue per capita varies directly with the size of the intermediate towns. Though this does not work out absolutely, there is at least always a tendency towards it.

These items commonly fluctuate in the following order: traffic, power, way and structure, general and miscellaneous, conducting transportation, and maintenance of equipment. All items since 1900 have had a remarkable increase and especially since 1914. The cheapened methods of manufacturing current and the consolidations with lighting companies, which have made possible the large centralized power plant, have to a large degree checked increases which would have been much larger. Centralized power plants have also created in the small town a market for electric power and light which otherwise would have been impossible, and thus have enlarged income and reduced costs by larger scale production.

The factors affecting the differences in maintenance accounts are less important in interurban than in urban properties. The line of least resistance in topography has usually been followed in the building of urban mileage, and this has very materially lessened both the initial cost of construction and maintenance of way. While inflation in construction accounts has been more prevalent in this class of public utilities, the variation in actual cost of construction has been much less. Where interurbans, in recent years, have been building more permanent structures and double tracking, these costs have materially increased with the increasing prices of materials.¹ With few exceptions, the majority of interurbans will never be warranted in following the policy of railroads in making as large outlays for permanent construction.

The operating expenses should fluctuate to some degree with the differences in the density of traffic, but not in the same ratio. An interurban system with double the traffic density, but traversing a level country, may have lower maintenance costs than a road in a hilly district. The same statement would apply to an urban company located in a hilly city. As maintenance charges vary somewhat with earnings, a comparison of maintenance charges should be checked with the earnings, car-miles operated, and character and amount of traffic. The character of the latter, with one or two exceptions, is not the per-

¹F. W. Doolittle, *Cost of Urban Transportation Service*, p. 46.

plexing problem that it is in the study of railroads, since the traffic is principally passenger. The equipment of an interurban system never has the wide variation found on a railroad, though considerable difference may be found in the equipment of two different systems. And any comparison not allowing for this difference would be fallacious. Frequency of car trips, speed, and character of equipment are the most important considerations. With the heavy interurban cars, the number of passengers is of little consequence in affecting the increased cost of equipment, as they are such a small proportion of the weight of the car. With the old light wooden cars, this was an important consideration. Depreciation of plants and buildings, in both interurban and urban properties, can be calculated at approximately the same rate for all practical purposes.¹ The interurban overhead wires are occasionally subjected to severe storms which cause large losses. If a system is peculiarly subjected to these storms, maintenance allowances should be averaged over a long period to cover such extraordinary losses. It is still problematic whether traction companies as a class are spending a sufficient amount for maintenance charges. Even allowing for the lighter traffic carried as compared with railroads, railway engineers of high authority maintain that interurbans are making less outlay than necessary. This contention means that, in the future, the burden of the operating costs should increase on a number of systems, if the efficiency of operation is to be maintained. Maintenance of way is directly affected by the character of the track and topography of the territory traversed. The same difference would not exist between two interurbans, one traversing a level, and the other an uneven country, as between railroads in the same territory. The heavy traffic of railroad trains, which is such a heavy charge on maintenance in hilly and mountainous regions, does not exist to the same degree on interurbans, because of the light traffic of the single car system. The maintenance for a single track will range from \$700 to \$2,000 per mile of track. The principles affecting a comparison of costs and the probable effect of valuation by Public Utility Commissions as applied to urban

¹See Topic on Depreciation.

street railway securities are also applicable to interurbans. The wide variation indicates the necessity of carefully scrutinizing the item. The other difficulty of establishing any absolute costs is apparent, of course, from the rapidly changing price of material.¹

To make any general approximation of the property costs carried on the company's balance sheet, it is necessary to procure some idea of the franchise and city ordinance requirements and the general conditions applicable to paving, etc., in the municipality in which the trolley system is located. The amount of any new issues, of course, is wholly dependent upon the relation of this property account to the existing earnings of the company.

¹Mr. Gotshall approximated the maximum and minimum cost per mile of interurbans centering in large cities to range from \$27,796 to \$90,623. (W. C. Gotshall, *Electric Railway Economics*, p. 52.) Mr. Gonzerbach estimated the cost of interurbans, inclusive of side tracks, etc., exclusive of the right-of-way, franchises, legal expense and interest charges during the period of contract, at \$29,750 per mile. (Ernest Gonzenbach, *Engineering Preliminaries for Interurban Electrics*, reprinted from *Street Railway Journal*, Apr. 4, 1913.) Mr. Fischer in his estimate of average conditions establishes a minimum of \$25,720 and a maximum of \$58,650, with an average of \$35,000. (Louis E. Fischer, *Economics of Interurban Railways* [1914], pp. 96-98.) Since these figures were made, the large increase in costs would require additions to these estimates.

Urban costs vary much more widely, as expressed in the costs given below, but again the reason for these differences is obvious with the difference in paving, underground and overhead trolley systems, etc. The Chicago Council Committee reported the cost of construction of New York companies per mile to be: for surface roads (including paving) \$80,000 to \$120,000; elevated (single track) \$200,000 to \$300,000; subways, \$600,000 to \$900,000; river tunnels for subways, \$1,200,000 to \$1,800,000. (*Municipal Reference Library of the City of Chicago*. Reference Bulletin No. 30 prepared under the direction of Theodore K. King. *A Study of Rapid Transit in Seven Cities* [July, 1914] p. 27.) W. S. Twing, former Chief Engineer of the Philadelphia Transit Bureau, estimated the costs for that city for surface lines to be from \$30,000 to \$50,000; open floor elevated, \$300,000 to \$400,000; solid floor elevated, \$550,000 to \$700,000; subways, \$2,000,000 to \$4,000,000. William Barclay Parsons, former Chief of New York City Rapid Transit Bureau, estimated the cost of surface lines at \$50,000; elevated \$500,000, and subways (single track) \$1,000,000. (Address before the City Club of Philadelphia, May 6, 1912.) The Chicago Council Committee gave for its estimates as: suburban (no paving) at \$25,000; city trolley (2 feet paving) \$42,000; underground trolley (as New York), \$126,000, and Washington for the same \$48,500; elevated (to meet Public Service Commission's requirements) \$126,000; elevated (with masonry) \$330,000; subways from \$402,000 to \$2,700,000 (for those under water ways). (*Municipal Reference Bureau* [Chicago], p. 11.)

CHAPTER XIX

STREET RAILWAY AND INTERURBAN TRACTION COMPANY BONDS

(Continued)

Technical Units of Measurement and Comparison.—As with other public utilities, it is desirable to have such standard technical units of comparison as will assist in a comprehensive interpretation of the street railways' status. When, however, these units of measurement are employed for comparative purposes, caution must be used in accepting the conclusions. Conditions affecting every company vary, and any result must be interpreted according to these modifications; otherwise these units of measurements are entirely specious.

Any unit measurements used must first necessarily have to do with the relation of the community to the traction company. These tests should indicate how effectively the services of the trolley are being utilized and what potential possibilities exist for the future development of the company's existing plant and subsequent expansion. The character of the community and the riding habits of the people must, of course, be used in the interpretation of these facts. The more general of these tests are earnings per capita (of the area served), gross earnings per mile of track, and density and diversity of travel. The limitations and possibilities of these tests have already been given under the general discussion of density of traffic. Diversity of traffic is obtained by dividing the maximum load carried by the average load carried. These two latter requirements give the effective utilization of the plant and are the controlling factors in the cost of operating the trolley system. It, however, requires some experience to use this latter test safely, as experience is the only safe guide to an understanding

of the qualifying conditions. The total number of revenue passengers compared with growth in capitalization and mileage will also give a general estimate of the growth of the organization.

The physical measurements of traffic for general statistics are the most effectively secured in the mile unit of track measurement of income, etc., as with steam railroads. The two other common units used with traction companies are the car-hour and the car-mile units. The car-hours are the hours the cars are actually out in service. The car-hour is assumed on the basis that most operating expenses continue when the cars are out, regardless of whether they are blocked or in active motion. On the other hand, it does recognize speed, for if a car doubles its speed, the earnings per car-hour correspondingly increase. It gives an excellent unit for comparison of earnings. The car-miles are most accurately obtained by procuring the number of miles each particular car runs. The car mileage is a direct reflection of the earnings of the cars in active service. Car mileage, is not the most exact criterion of expenses, as costs go on even if the car stops or is delayed on its route before reaching its destination. Car mileage, however, is the unit most commonly used and for most purposes serves as the best available unit of measurement.

Earnings and costs for financial purposes are adequately tested by measuring the total and individual items to the mile of track, the car-mile, the car-hour, and revenue passenger. The car-mile unit varies both with the distance traveled and the car-capacity. As the latter varies, the unit of measurement is not constant. As some of the elements of costs vary directly with the car-hour, such as the services of conductors and motormen, the car-hour is a useful measurement of costs.¹ More

¹Mr. Fischer (*Ibid*, pp. 34-35) found the range of operating revenue of interurbans in a study of thirty-six companies to be from \$7 to \$13 per capita, with twenty-one of these between \$8 and \$10 per capita. He states further that where two large cities are less than forty miles apart, the per capita return from the second terminal will range between \$6 and \$20, and with each additional ten miles, the revenue will decrease 10 per cent. This range usually increases with the relative importance of one terminal over the other, and if they are both small cities and of approximately the same size, the range will reach the lower figure.

careful consideration, especially with interurbans, must be given to the distribution of population than to the actual size of terminals or amount of population. The revenue standard unit is also influenced by limitations which must be used in applying any comparisons. A uniform length of ride is assumed with the revenue passenger, although this condition is not true of the suburban extensions and the interurban traffic. When zone-rates are used in interurban lines, this is partially offset, though the average length of ride is longer. More than one-half of the companies under their original franchises have been forced to extend the length of ride with the extension of the limits of the cities' boundaries. A larger use of the transfer also reduces the actual number of revenue passengers, though the total traffic statistics might remain the same. The length of ride will be reflected in the reduction of the passenger rate per mile, which will reflect the weakening condition of the company unless offset by other factors.¹

The same measurements can be applied to costs, though the same limitations must be accepted in the interpretations of their value, as with the operating revenues. If in the use of the passenger unit, the average haul remains constant with the changing conditions, the status of the traction company as measured by this unit is unchanged. If the expansion of the mileage or expansion in traffic forces a relatively larger part of the increase within one or two hauls (*i. e.*, trips for a car) for the day, the extra cost involved will more than offset the in-

Bion J. Arnold, *New York Subway Report to the Public Service Commission of the First District* (p. 10), states:

"Every car operated one mile will entail a corresponding maintenance, *i. e.*, the unit cost per car-mile of the three items of Maintenance of Way, Maintenance of Equipment and Power Plant is practically independent of the number of car-miles operated and will not decrease materially as car-miles increase." Further he adds: "The unit costs per car-mile of wages and power supply are almost constant, which means the avoidance of running empty cars. Such items as wages of platform men, etc., other transportation expenses, and general expenses vary inversely as the car-miles run."

¹An interesting illustration of the increase of these costs with the extension of the fare limit is brought out in the *City of Milwaukee vs. T. M. E. R. & L. Co.*, 10 W. R. C.

See also D. C. Jackson, *Street Railway Fares in Their Relation to Length of Haul and Costs* (1917). Chaps. iv and v.

crease in revenue.¹ For illustration, if the income of a trolley system were \$500 and the maximum requirement of cars were 10, in any one hour, this would be the maximum number of cars needed. Suppose the revenue of this same company increased to \$1000, but the maximum number of cars needed in the highest rush hour was 25; then this company, other things being equal, is not as well off.

The car-hour, though like every other unit of measurement is unsafe if used as a single unit, does have peculiar value in measuring labor costs and in showing the relative efficiency of motormen and conductors. The car mile varies with the size of the car, the conditions under which it is operated, and the speed of the car—all of which limitations must be accounted for in using this measurement.

Operating ratios, which are so commonly used, as emphasized in the chapter on the Corporation Report,² are significant, though often misleading to the uninitiated. The errors or differences either way will probably make the ratio for the street railways of the United States a fair average standard. According to the Federal Census Bureau, all street railways of the United States show an operating ratio of 63.8 per cent for 1917, 58.7 per cent for 1912, and 61.1 per cent for 1907.³ In the street railway census of 1917 approximately two-thirds of the states had operating ratios ranging from 53.7 to 65.3 per cent. In a study of forty street railways made by the Electric Railway Journal on the basis of the McGraw Electric Manual, the range of operating costs for surface railways was from 45 to 75 per cent of gross earnings.⁴ Since 1917, the upward movement of costs has increased these ratios.

Where consolidation has been effected with electric-light and power companies, this percentage has been decreased, and well-managed companies under normal conditions should show less than 60 per cent. The majority of the strictly street railway companies have operating costs ranging between 60 and 70 per

¹*American Electric Railway Association Year Book*, 1914-1915, p. 303.

²See topic Operating Ratio in Chap. v, on Corporation Report.

³*United States Census Bulletin, Electric Railways Bulletin*, 1917, p. 91.

⁴*Electric Railway Journal*, vol. xlii (Oct., 1913), p. 925.

cent of gross earnings. Street railways in cities over 100,000 with operating ratios over 70 per cent are usually very small companies, or operate in the outskirts of the city. Operating ratios are usually lower in large cities than in smaller cities, as the density varies with the population. The more expensive costs of operation and higher wages in the city are in a measure offset by the larger number of passengers per mile of track.¹ Further, where density is great, the operating ratio is small and the fixed charges are large. The same is true in the comparison of the number of passengers carried per car-mile.

Elevated and subway railways should have a much lower ratio of operating expenses than surface lines, though there is, as a matter of fact, no common experience.² They are not subject to expensive blockades, snow storms, etc., as are the surface trolleys, and a considerable savings in some systems is also realized by large cars and long trains, though this is offset to some extent by the cost of stations. The required length of haul, especially where the population density is small, is becoming a serious burden to elevated systems, though the same difficulties exist in surface lines which are over-extended, and where one fare is charged and a large number of transfers are used. Short hauls through a densely populated territory should always have the lowest operating ratios, as heavy traffic usually results in large earnings per car-mile. In cities over four hundred thousand the constant obstructions to traffic, where traffic regulations are not very efficiently managed, may increase wage charges by retarding the speed of cars, though the increased density usually tends to offset this increased cost.

¹United States Bureau of Census Street and Electric Railways (1915), p. 263.

²The comparisons of the Boston traction companies, as illustrating the difference in costs, are interesting.

	Way and Structure	Receipts	Car Mile	Operating Exp.
	Per Car Mile	Per Car Mile	Rnn Costs	to Gross
Surface Lines	3.19	32.9	22.1	67.1%
Rapid Transit Lines ..	2.09	28.4	15.5	54.5%

(John A. Beeler, Report on the Methods and Practices of Boston Elevated Railway Company, Boston, Massachusetts, to the Public Service Commission, Commonwealth, Massachusetts, November, 1917.)

The constancy between the averages of the operating items themselves is shown in the five different census averages, with the exception of way and structure accounts, which indicate a persistent upward trend substantiating the contention of the increasing amount of the outlay for all expenditures. The aggregate amount of the operating expense has experienced enormous increases in both material and labor costs. But the persistency of these ratios argue for their defense as an approximate standard in analyzing the average American urban railway.

Concerning the fixed expense, the Fare Research Bureau of the American Street Railway Association, states:

“ . . . The fixed expenses representing capacity may be expected to vary with such units as the mile of single track and the number of cars owned. Fixed expenses are those which will accrue in practically the same amounts, whether the property is operated or not. Variable expenses are those which vary to a greater or less degree with changes in the amount of service rendered, and may be expected to vary with such units as the car mile, the car hour and the number of passengers carried. Ad valorem taxes and interest are examples of the former, while platform wages illustrate the latter. As applied to the cost of carrying a passenger, total fixed costs may be expressed in passenger units and variable costs in passenger mile units.

“The ratio of variable to fixed units indicates the degree to which capacity is used. The number of car miles per mile of single track represents the density of service, passenger miles per car mile, the density of track, population per mile of track, the density of tributary population, and number of passengers to population, the number of rides per inhabitant, or riding habit . . . ”¹

Capital, Capitalization, and Property Investment.—The variety of items and the lack of uniformity in the meaning of these items give a rather confused understanding of the financial situation of street railways, unless the proper interpretation of the street railway report in question is known. The first important deduction in the balance sheet is the cost of construction. More than five-sixths of the reported assets of street railways are included in the items “Cost of Construction and

¹*Ibid.*, p. 88.

Equipment.”¹ Many companies also carry their franchises as an item in the cost of construction. But the difficulty, and a fact that must be constantly borne in mind, is that these costs do not always indicate cash outlays. Large increases in franchise items have resulted from the consolidation and re-consolidation, as the “Cost of Construction,”² will indicate in a number of the older companies.

Where other investments are carried as an asset, checks should be made against a duplication of these accounts. The majority of these securities appearing in street railway statements are the securities of subsidiary companies which are partly or completely controlled by a parent company, often constituting a separate corporation. As a consequence, when the financial status of the parent company is affected, the securities of the subsidiary company or companies, which are only a part of the same organization, are equally affected.

In the absence of information on the capitalization of subsidiary companies, the funded debt might seem totally insignificant, when as a matter of fact, the subsidiary companies were grossly over-loaded.³ Advances can also be made to subsidiaries, a practice which allows a continuous pyramiding of security issues, the actual amount of which is not known to the investor. The practice of issuing only part stock, also found in the simple operating company, is more easily obscured in the holding company. The difference between the par value of the bonds and stocks and the assets of the company, is usually made up in the value of the franchise, as the net quick assets are relatively a very small amount. And frequently, the investor is ignorant of the over-valuation placed upon the franchise because of the failure to separate the franchise from other asset

¹*United States Census Bulletin*, No. 124 (1914).

²No estimates of cost of construction can be used for comparative purposes because of the wide variation in the character of construction and the necessary costs due to the difference in amount and character of traffic. Owing to the emphasis now being placed upon physical valuation of public utilities, a knowledge of these facts is important. A comparison of roads under similar conditions, if they can be found and if the facts are carried down to date, will, however, not only give light as to the actual outlays, but will indicate what effect, in the very near future at least, any regulation of valuation may have on the system.

³See chap. iv, Analysis of Corporation Report.

values. Where the company is highly successful, this condition will have little significance compared with the great value of the company as a going concern, but when the value is not an assured certainty, it becomes exceedingly important whether the capital stock has been fully paid. Again, where state commissions are putting particular emphasis on cost values in relation to rates, the full knowledge of these facts is imperative.

A detailed study of the United States Census figures shows a very large over-capitalization as compared with the steam railroads of the country. And this is the greatest weakness of the street railway companies as a class. Individual violations of sound financing, as with all classes of corporations, are apparent in the relation of funded debt to capital stock. This is a remnant of the older method of financing street railway property, but is now considered precarious to the interests of both the bondholders and stockholders. The companies possessing a large percentage of funded debt and which have not been forced into receivership have been largely able to maintain this large fixed charge because of the rapid growth of the city. It is highly improbable that a new company could secure its capital on that basis today, though a number of companies are still yielding to the questionable practice of issuing large stock bonuses.

In states where corporations are rigidly regulated and security issues limited, as in Massachusetts, the correct proportion of capitalization may be violated by a large amount of current liabilities. It is not an unusual practice, under such regulations, for corporations to carry a considerable amount in promissory notes which has been used for construction purposes. The high rate paid for short loans and the frequent renewals or settlements make this method of financing costly. However, Massachusetts, whatever may be said in criticism of its early legislation, has eliminated to a considerable degree many of the objectionable features of this former regulation of financing public utilities.

Large allowances, on the other hand, must be made for this over-capitalization existing among electric traction companies. While every company has been subject to a large number of

varying local conditions, all properties have been affected by the increased costs. The increased municipal requirements for paving, and the acquiring of other than railway properties, and the rebuilding, changing and improving, on the company's own initiative, to meet the demand for service have forced enormous increases in investments. The total expenditures have consequently often been larger than if the properties were now constructed new. The changes have, however, usually been profitable even with the great increase in fixed charges when the savings in operating are taken into account. But there has been as a result of this obsolescence, a considerable and necessary waste of capital. And it might be well here to emphasize the fact that one important difficulty with a number of companies is their failure to provide for obsolescence out of earnings so that properties long passed to the junk heap are still carried in the capital account and covered by securities outstanding.

The failure to provide for the depreciation of this obsolescent property thus causes the continuance of the payment of interest and dividends upon the securities representing this discarded property. Fares should consequently be allowed that would enable the companies to make provisions for the changes. The older companies, however, without exception, regardless of their earnings, paid out the greater part of the earnings in interest and dividends. Surplus, wherever accumulated, was used in the extensions of new lines. Had correct accounting methods been practiced, a great many of the horse and cable railways would have been largely written off, and consequently the large increases in capitalization would have been obviated. But with the rapid changes that have been made in electrical transportation, it would have been impossible in the majority of properties to make allowances for the depreciation account and provide for expansion and improvements, without endangering interest and dividends. But since sufficient experience has now been attained in electrical properties, it would seem to be the soundest method of financing to reduce as rapidly as possible any accumulations of depreciation.

It is difficult to obtain accurate information as to the actual

cash that has been put into the construction of electric railways. The original costs of construction accounts that have been carried forward in the balance sheets give little information and little assistance. The intermediate construction company accounts have also often made the book values misleading. Consolidations have, however, as already pointed out, been the greatest cause of the inflation of costs. The cost that is entered by the purchasing company is the price paid in its own securities. This amount is usually based on earning capacity, and if the railway is a large earner, a premium price above the capitalized earning price is usually paid to obtain control. But, as courts and commissions in their decisions of valuations are placing emphasis on the relation of capitalization to expenditures in construction, it is decidedly important that this relationship be known to the investor.

According to the United States Census, the capitalization of street railways, as a class, varies with the size of the city, but not at a proportionate ratio. Though the street railways in cities under 25,000 do not seem to be over-capitalized, as compared with the railways in cities above 25,000, the small percentage of these properties that receive any dividend returns shows that either they are over-capitalized or are not receiving a sufficient rate for their service.

Depreciation.—It was not formerly customary for street railways to provide for the deterioration and obsolescence of physical property. This practice was justified on the basis that the appreciation in the value of the property due to the growth of the city was greater than the actual depreciation. This argument was used to vindicate the practice of issuing new capital to the amount of this appreciation when replacements and renewals were necessary. Such a practice cannot now long continue in most cities, for with a slowing up of the growth of urban population, retardation in appreciation will take place. At the present too many systems which claim to maintain a depreciation fund, set aside such varying amounts that the average rate is inadequate. Accountants frequently contend that with the existing capitalization many systems could not provide a proper allowance for maintenance and depreciation and make

a creditable return on the par value of their stocks. The Federal tax laws will eventually correct this failure to allow for depreciation by its allowances for depreciation deductions in levying taxes.

Owing to the rapidity with which obsolescence in the early organizations forced itself upon these companies, they had to make new capital issues which on the face of the meager statements issued by these traction companies seem justified. But had the complete facts concerning these earlier street railways been published at the time of the new capital issues, few of these issues would have been sold. One needs to make only a cursory examination of the United States Census Bureau's reports on the growth of mileage and capitalization to be reminded of the force of this statement. At the present writing, with the continuing high costs following the War, the situation has become extremely acute with these over-capitalized companies. At best, the situation for all trolley systems is bad and needs correction, though this situation must not inadvertently be made the pretext for a continued inflation of the companies which have been at fault. To overlook this depreciation means an even greater obstacle to the proper recognition of depreciation. This statement does not, of course, imply the wholesale condemnation of all traction systems, yet we must not approve the widespread recurrence of this questionable procedure in the early history of traction companies. In several of the states there are now statutes requiring the setting aside of a definite annual amount for depreciation.

The rate of depreciation will vary with the age of the property at the time of the bond issue, the length of the haul, character of equipment, the requirements in the ordinance concerning paving, the amount of traffic, etc. In a rapidly growing city obsolescence has been a greater charge than actual depreciation of equipment. The Wisconsin Commission ruled that the rate for the City of Milwaukee's street railways should be at 5.35 per cent of the value of the depreciable property and the net on the entire cost of the physical property at 4.8886 per cent.¹ On the basis of the investigations of the Committee on

¹Washington Park Advancement Association, etc., vs. T. M. E. R. & L. Co., 13 W. R. C. R., 239.

the life of railway physical property of the American Electric Railway Association and the foreign associations of the tramways, commissions have placed the rate on physical property between four and five per cent of the cost of physical property or between 16 and 20 per cent of the operating revenues.¹

*The Franchise.*²—Insofar as the financial status of the company is concerned, it is essential to know four things: first, the duration of the franchise; second, the limitation placed upon the charges which can be made; third, the requirements affecting the company's own equipment and tracks, and amount of paving, etc., which must be done for the city; and fourth, the reimbursements which must be made to the city.

The duration of the franchise should extend for some period beyond the life of the bonds. In practice the fulfillment of this requirement is not so simple, because of the complications entering into the holding company organization. The holding company issues are also secured by subsidiaries. It is not unlikely that the franchise of some of these subsidiaries will expire before the bonds of the holding company are due. Consequently, the property values and the earnings of the subsidiary must be secured and its relation to the whole then determined and deducted, though the expiration of a single subsidiary may not be so important where public relationships have been cordial and renewals are easy. The acceptance of the principle of the monopoly has tended to diminish the former importance of duration and to place the emphasis upon the last three essentials of the franchise given above, which directly affect the financial returns of the traction company.

When the interurban has franchise privileges in its terminal cities or through towns and cities, the same requirements apply as with franchises of purely urban systems. If a right-of-way is owned the same general regulations apply as to steam railroads. Right of ways are commonly owned through rural territory, but their value is a small fraction of the land values owned within the municipality.

¹*Bureau of Fare Research of the American Street Railway Association*, p. 63 (1916).

²Delos F. Wilcox's *Municipal Franchises*, vol. ii, on Transportation Franchises, will be found particularly instructive in the study of the underlying requirements of franchises.

The chief weakness of the street-car companies, alluded to so frequently in this chapter, is that their charges are fixed. (These charges are always stated in the franchise.) If the city limits are later extended, the new area is included regardless of its extent and the amount of traffic which it will furnish, and the possible losses which the company may suffer by giving transportation facilities to this new area. The injustice of fixing for all time a rate which has no relation to costs needs no comment. Why should a custom-made rate of half a century ago continue, if it involves losses? War pressure, which has proved such a burden to traction companies, has hastened a recognition of this injustice and has resulted in the granting of increased rates. Indirectly this injustice is also recognized in the granting of equitable returns upon the investment.¹ It has been unfortunate that the over-capitalization of so many traction companies has brought about a confusion of the real issue of fares and caused the conservatively capitalized and managed traction companies to suffer. This over-capitalization, resulting in the multiplicity of issues and consequent over-issues through the holding and subsidiary company entanglements, should be remedied, although reduction of capitalization would not itself result in a rate adequate to yield the parent company a sufficient return.

The agitation for low rates which has been more acute with street railways than with any other public utility, was started after a long period of a steadily increasing price level. In these agitations, as a class, no recognition for a long time was taken of the decrease in purchasing power of the nickel, which must either force a reduction of the quality of service or impoverish the company. This does not argue for high rates for public utility service, for public utility charges, because of the com-

¹The Nebraska Railway Commission in 1911 ruled in the case of the Lincoln Traction Company, that an 8 per cent return on the capital stock was not excessive. The Washington Commission in the same year held that 7 per cent might be considered fair for the Puget Sound Electric Railway Company; in the Savannah Electric Company case (Gas) 6.77 per cent was not considered excessive; the New York Public Service Commission, 2nd District, held in the Rochester decision that 8.58 per cent was not excessive; and New Jersey in the Trenton Mercer Company Corporation ruled that 7.37 per cent was sufficient.

mon dependence of modern industrial organization upon them, must be kept as low as is possible and at the same time allow a high enough return upon the investment to invite capital.

The demands placed upon urban railways for paving, etc., have greatly increased as municipalities have developed. Franchises also include clauses, which give to municipalities the power not only to require unusual replacements, but actually to change the conditions of the franchise. Pressure of public opinion may become so great that it may be best to waive the privilege under an existing charter, and procure a new charter as Chicago City Railways did in 1907. The yearly income statement should be sufficiently detailed to give one an accurate insight into the importance of this existing burden, though it will not include the future additional burdens, which may be added by authority of the franchise.

A large number of street-railway franchises call for a division of the net profits with the municipality. This developed as a compromise with the municipal ownership advocates, but this form of franchise is now being substituted for another form referred to later. The franchise should be carefully examined, as to whether the city's allotment, within the life of the bond issue, to be purchased will be increased. A detailed study of Chicago, Cleveland, and Kansas City franchises in this regard is particularly instructive.

Regulation.—Regulation of public utilities has, each year, become a more and more important consideration. While these regulations embrace all features of service and operation, as well as the finances of the utility, the investor is primarily interested in all these from the standpoint of their effect upon income. With forty-eight different states having power to regulate, the classification of all the variations appearing in the statutes of these states becomes impractical. However, the acceptance or rejection of the more fundamental principles underlying regulation should be examined by the investor, as their effects upon investment values are of large importance.

Before commenting on the form and tendency in regulation, two things should be observed as having an influence on the value of the particular regulation. The first of these is that of

the public attitude in the locality. The second consideration is that of distinguishing between the security issues made in those states which have already adopted far-reaching regulatory measures, and those which have been issued in states having limited regulation. Though this fact may seem so apparent that it does not warrant comment, thousands of investors have passed it over without giving a single thought to its consideration. This discrimination must be made as long as such wide differences exist as to what standardization includes and means. Where statutory regulations are still meagre, or laws have been passed but not tested by court and commission decisions, sufficient discount of their future influences must be allowed. New legislation will in most cases tend to depress temporarily security prices below their real values, but securities of sound values always react. To the shrewd investment purchaser, this situation offers excellent opportunities for purchases, as the market sooner or later discounts these conditions.

While a corporation which has a monopoly of the business should be required to render as cheap service as possible, it should not be denied a legitimate return upon the capital invested in it. This is not only an injustice to the security holder, but also results in bad service to the public and discourages new capital from seeking investment. And sound regulation, as far as its effect on long time investments is concerned, cannot injure the interests of the corporation, the public or the investor.

As the several forms of regulation, except that of cost-at-service have already been discussed under, the "Regulation-of-Security Issues" and "Railroad Regulation," let us examine this form of control. While the cost-at-service form of regulation is still in the experimental stage, theoretically at least, it would seem to overcome the objections of the fixed fare, which has failed so ignominiously in the last ten years. According to the Federal Electric Railways Commission,¹ practically all of the witnesses before this commission favored the service-at-cost

¹*Report of the Federal Electric Railways Commission to the President*, August, 1920 (Wash. Gov. Printing Office), p. 27.

franchises. This, of course, automatically fixes the net profits in the industry. While this plan also has the objection of limiting the stimulation which goes with the reward of profits, it does have the inherent possibility of stabilizing the industry. There is an even greater objection at least so considered by some, namely, the determination of costs and the possible development of inefficiency and uneconomical operation. But these difficulties are not impossible of solution. Further, as rates will continue to be regulated and the investor is not alone the only one to be considered in any regulatory measures, any permanent adjustment must be made in justice to all parties. This seems to be the most reasonable arrangement that has so far been made for handling street railway rates. They provide fairly definite terms on which rates can be increased or lowered. Investors also can know fairly definitely what to anticipate from the money which they put into these securities.

Many of the faults in regulation from which the utilities would have suffered have been offset in their remarkable growth. But when the growth of an industry slows up and at the same time costs suddenly mount as in the last few years, the faults which may exist in regulation quickly reveal themselves. While some of these faults in regulation have long been known, the franchises of public utilities have never before been put to a real test. On the other hand, it must be admitted that with changing conditions in industry, new forms of control are needed, but this can only answer in part for the chaotic financial condition which has existed in the past five years in the public utility industry, especially in many street railways.¹

The basis of rate making for public utilities has often been so uncertain, and the machinery for rate fixing has often worked so crudely, that they have had a material effect on the price of a considerable number of public utility securities. Any change in franchise regulations, which would tend to remove these uncertainties, should be of the utmost value to investors of

¹According to the *Report of the Federal Electric Railways Commission* (1920, p. 7), on May 31, 1919, there were 62 companies in receivership, and by July 1, 1920, 56 companies were added to the list and 98 companies had either abandoned or junked a part of their mileage.

public utility securities. The unfortunate experiences of the past five years, as previously stated, have fully awakened the public to this situation, and a very considerable number of street railway securities will be transferred from the speculative class to the investment class in the next few years.

Another factor, which has made more serious inroads into street railway revenues than the general public has realized, is the jitney. This has been particularly true of street railways in moderate sized cities. Of this competition, the Federal Electric Railways Commission states: "Jitney competition began about 1912, and was at first entirely unregulated. Even today, in some places it continues with no regulation of any kind, and in many places with only partial and inefficient regulation. In no instance has this so-called jitney carriage of passengers been subjected to obligations as to payment of taxes, maintenance of highways, character and extent of service and financial responsibility for accidents under which the electric railway business is being conducted. The portion of the street paved and maintained by the electric railway, and in winter cleared of snow at its own expense, is taken advantage of by the jitney competitor without compensation, either to the company or the municipality and often to the serious injury of the street railway by interfering with the prompt and regular movements of its cars. . . . That street railway service and jitney service can not permanently exist and pay their own way in competition with each other under any ordinary urban conditions, seems to be well established by experience and by the conditions inherent in local transportation service, but the belief is general that the motor bus may properly be used to supplement the service rendered by the street cars."¹ Furthermore, the jitneys largely confine themselves to the short-haul traffic which makes this competition all the more serious.

Again there is no need to argue the necessity of a close examination into the regulation as well as the possible competition of the jitney bus. In certain types and sizes of cities, this competition has made decided inroads into the earnings of street

¹*Report of the Federal Electric Railways Commission (1920)*, p. 19.

railways. While regulation may eventually be brought about, the investor cannot anticipate possible changes of this character too long in advance. The conservative investor must be governed more largely by the tested experience of the corporation.

As most students of public utility regulation now agree, regulation should not be left to the local community but to the state. Local prejudices and political control are apt to exercise a more decided influence than where common legislation exists in the control of all cities. After all, the fundamentals governing rates, capitalization, valuation, depreciation, taxes, returns, etc., should be the same for all cities. Sufficient elasticity can be allowed in details of operation, services, etc., to permit adaptation to local conditions. While this discussion which dovetails into the discussion on Regulation of Security Issues and Railroad Regulation has not gone into minute detail, it is sufficient to give evidence of the kind of problem that the investor must analyze in examining street railway securities. But despite the unsatisfactory situation of the traction companies during the last five years, the future seems much more hopeful for the industry. The difficulties have been realized and both the public and public utility commissions are responding to these needs. Of course, it must also be remembered that even with these common difficulties of many of the street railways, there are systems which have continued in a strong position during these years.

General Characteristics of Bonds.—Street railway bonds are few and simple in characteristics as compared with railroad bonds. They usually are first mortgages with a few collateral consolidated and refunding issues, though the latter have been increasing in recent years. Bonds issued by holding companies as first lien issues are those requiring closest scrutiny. These issues are rarely first liens except upon new extensions, and these are generally but a small portion of the total equity. Bond issues upon such security may be ample, but there are now outstanding a number of such issues of holding companies whose subsidiary corporations are already heavily loaded with bonds. First liens of such corporations have little significance.

Now and then a second mortgage appears under the title of the last three issues.

The maturity of these bonds varies between twenty and forty years, though a large number of them are callable after a stipulated period at a premium as high as ten points. They are more often subject to call in part than as a whole. The nominal rate averages from $5\frac{1}{2}$ to 7 per cent. As few of the bonds are listed, there is never a very wide market for the strictly interurban securities, although their market has been increased in the last eight years, and several bonds now have a national market. This change can be attributed to the strengthening on the part of the companies themselves and the corrections of the former loose financial methods brought about by conservative investment bankers. A number of these properties have, as a result of these changes, become very desirable properties and their securities have a ready market.

Practically all of the older issues have the sinking fund provision, which is not always found in the new issues. A number of the large recent issues are provided with the open-end clause, now typical among a large number of public utilities, which allows for an increase of funded debt to the total amount of 60 to 85 per cent of new construction.

CHAPTER XX

ELECTRIC LIGHT AND POWER BONDS

Statistics dealing with electric lighting and power companies cannot be treated with the same assurance as those of gas and waterworks. As with the street railway, electric lighting and hydro-electric power development came so rapidly that the industry seems long established to the casual observer.

The electric-light was demonstrated by Sir Humphrey Davy as early as 1808, though it was not until almost 1880 that the incandescent lamp was used by commercial companies. The period from 1880 to 1890, though marked by a considerable expansion, experienced a number of unsuccessful attempts to establish electric lighting corporations. The expensive methods of generation still made the cost of current abnormally high, and this high cost, together with the uncertainties attendant upon a new business, rendered the industry unstable. During this era, considerable hostility also existed between the arc and the incandescent light interests, but this was a purely prejudiced commercial rivalry, and not a serious technical difficulty,¹ though it did tend to handicap the business in localities where price-cutting resulted.

The most significant recent development in the electric lighting industry has been the increased area which inventions, affecting long distant transmissions, have enabled the central station power house to reach.² With a large power plant and trunk-wire lines built, a very small additional expense is involved in supplying current to the smallest hamlet within a very considerable radius of the hydro-electric plant. Wider distribution and larger centralization bring about a more effective use of

¹*Central Electric Light and Power Stations*, 1905, p. 4 (Department of Commerce and Labor Bureau of Census, United States).

²See *Hydro-Electric Securities*, Chap. xxii.

the generating plant and thus enable the company to sell current at such prices that the output is augmented.

These advantages existing in the control of large plants, have induced syndicates to obtain control of a number of plants in order that a large operating unit may be developed. The advantages of large units obtain, especially in the large cities, and consequently, the largest percentage of syndicate control is in urban centers and their adjoining territory.

A compilation made by the *Electric World* in 1913,¹ of central stations in towns and cities over 1000 in population, shows that out of 4774 plants, "48 per cent of the total number of central stations in these communities are independent of financial connections, close or remote, with other properties; that 29 per cent of the total number of plants are held under some form of syndicate or generally admitted financial control by well-known interests and that 23 per cent of the total number of plants are municipal. . . . We find that in the cities of over 100,000 population, 87% of the plants are controlled by some form of syndicate, holding company, or financial interest. The proportion is slightly smaller in cities of between 50,000 and 100,000, being 84 per cent. In the cities of still smaller size the proportion of plants owned or controlled by syndicates becomes less. In the cities between 10,000 and 50,000 population 63 per cent of the plants are held by syndicates. In the cities of the next smaller group, 5,000 to 10,000 population, 44 per cent of the plants are held by syndicates. The proportion is reduced to 20 per cent in the cities of between 1000 and 5000 population." Similarly, the proportion of the municipal plants to the total number of plants decreases with the size of the city. This same compilation adds concerning this: "The proportion of municipal plants is but 3 per cent in the larger cities." It

¹*Electrical World*, 1913, vol. lxii, pp. 458 and 482. The data for this compilation were taken from McGraw's *Electrical Directory*, and Poor's and Moody's *Manuals of Public Utilities*. Though the figures for 1912 are now out of date, they are the only available national data which we have. These percentages, however, have not changed much in the aggregate; consequently, the compilation given above is not as old as appears from the date of citation.

See also estimated figures for 1920 in *Electrical World*, vol. lxxvii (January 1, 1921), pp. 39-46.

should also be borne in mind that the larger cities furnish both the larger gross revenue and the larger net profits, because of the greater density of population and the advantage of lower costs in large scale production. More than 90 per cent of the total income in the United States from electric-light stations is from central commercial stations.

The situation of electric-light companies which Mr. Martin summarized in 1912¹ still continues at the present: "The vast majority of them (*i. e.* cities) being under unified control but subject to the regulation of public service commissions, as to their rates, capital, conditions of service, and other features of work. . . . In the case of the Boston Edison Co., which supplied electricity originally to one-eighth of a square mile, the area embraced by the circuits of the same company is now 700 square miles." The real advantage in these consolidations has been in the cheapened costs. This report states further: "The advantages of such interconnected operations are best illustrated by the example of the Lake County district, Illinois, where this unified service effected a decrease in production costs from 7.07 cents per kilowatt hour to 2.87 cents per kilowatt hour, a saving of 4.21 cents per unit."² The following summary from President T. E. Murray's paper before the Edison Illuminating Companies in September, 1911, brings out the importance of low costs of construction: "The importance of striving after low cost of construction per kilowatt³ of station capacity will be appreciated when it is considered that the effect of a saving in station investment cost of \$5 per kilowatt is equivalent to an annual saving in the coal of 12 per cent with coal at \$3 per ton where a fixed annual charge on the investment of 14 per cent is allowed to cover interest depreciation and taxes."⁴

¹Thomas Commerford Martin, Part II Technical, *United States Census Bureau, Central Electric Light and Power Stations and Street Railways* (1912), p. 111.

²*Ibid.*, p. 112. (These prices of course have increased since this report was made.)

³The standard unit of measurement for electric current is the kilowatt hour, "A unit of work or energy equal to that done by one kilowatt acting one hour" (approx. = 1.34 horse power hours).

⁴*Ibid.*, p. 114.

Population, Physical Factors, and Territory Served.—The class of people served, their geographical distribution, and the number and size of the industries are, as with other public utilities, the first considerations. Any irregularities in population distribution, however, will not be as serious to electric-light companies as with either traction or gas companies, for the equipment of the former is much more elastic in its adaptation. Gas mains or rails are expensive to install, so that when extensions are made the growth of the locality must be anticipated for a number of years. On the other hand, if electric lighting lines are to be placed in a new territory, light poles, etc., can be installed and these poles can be readily replaced at a relatively low cost, as compared with the laying of rails or gas mains. Electric lighting companies consequently have much greater power over the control of this part of their fixed investment, debarring an unreasonable ordinance.

Neither does the character of topography have the effect upon the cost of construction which it has upon cost of laying mains for gas companies or tracks for street railways. With street railways, a hilly city always means a large increase in the constant cost of operation, though a similar condition would have no effect on the operation cost of electric-light companies. The effect of location upon power plants, however, is paramount. If a city is near enough to water-power, the cost of current may be materially lessened or current may be purchased to advantage from a hydro-electric company. In fuel-using power plants, the location near a coal or oil field or waterway connection with a coal field will give advantages in transportation costs. Though the problems of power plant costs are much the same as those of other public utilities, there is again more adaptability to existing needs in initial construction costs of the fuel-using power plants than in water-power plants.

Density of population has a direct bearing upon the earning power of electric light companies, as with gas companies. "In general, the larger the capital invested in proportion to the annual revenue," states Mr. Junkersfeld, "the more important is the matter of density. For instance, the capital invested in many public utilities is turned over about once in from four

to six years. . . . The slower the turnover the most important is it to make every dollar invested serve as many customers as possible, in order to prevent the turnover from being still slower.'"¹ If congestion of population becomes so great that the company, for the safety of the public, is required by ordinance, to lay underground wires, the cost of wiring is greatly increased.

Without a technical knowledge of electric-light properties and equipment, an appraisal by independent engineers at certain intervals is almost essential to the investor. If a thorough appraisal is once made, it is of course not so essential that subsequent appraisals be as complete. The rapid depreciation and especially the obsolescence of electric-light equipment require a constant and close check upon the equipment of electrical properties. For the general investor the kilowatt capacity of the dynamos gives a more significant idea of the plant than the more detailed enumeration of prime-movers, boilers, dynamos, etc., or even horse power, though a detail of plant equipment should be had for an accurate check on depreciation. To the technician other engineering devices which economize in the use of fuel, character of lines, poles, transformers, character of street lights, etc., are valuable, though the financial statistician secures his estimate of the same thing in operating costs.

Capital, Capitalization, and Property Accounts.—The commercial stations, as stated, represent the larger share of capital with more than 95 per cent of the capital investment of all electric lighting stations. In the commercial organizations, common stock represents 50 per cent, preferred, approximately 10 per cent, and funded debt, 40 per cent of the capitalization. The amount of current produced per dollar of investment, however, has increased at a greater rate than capitalization. The lower comparative percentage of increase in earnings for the industry as a whole for the same period would be normal, because of the lowering of electric rates and the very great increase in new and permanent construction not yet utilized for future needs in the next ten to twenty-five years. When the growth of popu-

¹Peter Junkersfeld, *Address before the Indiana Engineering Society, Thirty-seventh Convention*, January 18, 1917.

lation has reached the point where the complete utilization of this expenditure is realized, income should show an even larger ratio of increase if rates are not radically reduced or increased costs do not outweigh the advantages normally accruing from a foresighted policy of construction. These conditions especially apply where the power is furnished by hydro-electric stations.

To insure an accurate valuation, as stated under the previous topic, an engineer's report is generally required because of the wide differences in electric-light accounting systems. A great many electric lighting companies do not separate land, buildings, and other items in the so-called property accounts. Whether the allowed depreciation is what it should be can be determined only from a complete statement. Neither is there any common method of handling the depreciation account where depreciation is allowed. It may be written off in operating accounts or carried as a depreciation reserve or directly deducted from the plant accounts. The book value of property accounts may, on the surface, reflect a different condition from that which the more careful analysis will reveal.

A distinction between station plant and distribution of the company's investments is useful in detecting more accurately the weak points in the utilization of the company's fixed investment. A badly planned distributing system which the company has acquired and not had time to rehabilitate may prove a heavy burden. No arbitrary ratio between the porportion of these investments can be given.¹ The reports of the Massachusetts Board of Gas and Electric Light Commissioners, which are the most complete and detailed, give a fair criterion of the property and capitalization of electric lighting corporations in

¹The distribution of the cost of a fair-sized station per kilowatt (T. E. Murray, *Association of Edison Illuminating Companies*, September, 1911) :

	Per Cent
Total	100
Building structure	30
Boilers, furnaces and auxiliaries	20
Turbines, generators, condensers with auxiliaries....	25
Piping systems	10
Switchboards and other electrical work	7
Miscellaneous small items, etc.	8

this state. The table given below is a summarization by Mr. Lincoln, in which he has made certain pertinent summaries.¹

The relation of the connected load and the peak load costs to property investment, discussed under a subsequent topic, reveals the effective use of the investment of the property and should be required in any analysis of electric lighting securities. An increasing connected load and its proper distribution in relation to the amount of investment in plant and equipment should always result in increased earnings. While unused capacity must always exist in the average plant in economically preparing for future growth, the examiner must ascertain whether this anticipation has been over-reached in too high a carrying charge in present investments. This danger is especially likely to exist where hydro-electric power plants are constructed.

As directly related to the growth of the community, the connected load can be studied with profit as to the future effects upon earnings. Furthermore, it is important to know whether the investment per capita and per consumer of the company has been decreasing, though the total amount is increasing. This eventually results in a retarding increasing return; *i. e.*, the saturation point has been reached. This information is particularly important if the company's policy is to make or if it is likely to be ordered by some commission to make, extensive

¹Relations between Investment and Extent of Business for 1915
(Massachusetts)
(Average per Plant)

Average per Plant	Municipal Owned	Private Companies
Total Investment	\$171,990	\$ 310,840
Station Investment	97,138	150,999
Distribution Investment	74,852	159,841
Kilowatt Capacity	951	1,366
Average K. W. per Dynamo	269	314
Current delivered (K. W. H.)	881,914	1,437,544
Length of streets with overhead (miles).....	41.1	55.9
Length of all lines (miles)	174	256.1
Length on conduits (miles) .....	.....	21.1
Length of cables in conduits (miles) .....	.....	123.3
Number of street lamps	673	677
Number of poles	1,355	2,655
Number of customers	1,063	1,377
Age of station units (years)	9.1	7.6

(Edmund Earle Lincoln, *The Results of Municipal Electric Lighting in Massachusetts* [1918], p. 160.)

improvements. A company's position is not necessarily endangered by retarding increasing returns, though, as previously emphasized, this point should not be overlooked in estimating future growth. Regardless of whether the decreasing return per capita is the result of a lowering of rates or the increase of smaller consumers or an increased utilization of Tungsten lights, which require less current, the effect upon earnings is the same, though a large growth of industrial corporations demanding current would again alter these conditions. Whether a permanent or a temporary saturation point has been reached, must be concluded from a detailed study of the character of the community.

The per capita measurement referred to in this discussion as an isolated unit of comparison is entirely misleading. For illustration, a corporation with a low property investment and a high operating ratio could not as a rule carry as high a fixed charge as a company with a larger property account and low operating ratio. The unit can be used only as a relative unit of measurement. Also variation in rates, changes in valuation, difference in taxes, difference in the distribution of capitalization, individually or together, can make such decided difference in the relative importance of fixed property accounts that the results of any single comparative unit standard of fixed investment are without any serious consequence.

The control and development of basic patents in the generation and distribution of electric current heat and power have often created a unique position for electric-light holding companies. The method generally followed by a company controlling the patents is to manufacture these appliances and rent them or license the local operating company to use them. In the early development of this control, the parent company was compensated by securities of the operating company for all or a portion of its supply of patent equipment and devices. The most common method of control has been for the controlling companies to require the purchase of at least a certain portion of the equipment from the parent company at stipulated prices. A frequent practice which grew out of this was to capitalize these patents and rights, a procedure which often led to inflation

of the asset accounts. A later development has been the outright purchase by holding companies. An intermediary financing company controlled by the large equipment companies is now also used in providing loans to operating companies which agree to purchase from the equipment company.

The greatest development, however, has been in the large holding organizations such as Stone and Webster, White and Byllsby. These companies buy up all types of public utilities and control every aspect of the industry. In this centralization of the financing, the purchasing of material and the operating of plants the greatest efficiency is secured.

Depreciation.—A common fault in the earlier years of electric lighting companies was the failure to recognize depreciation. No well managed company today follows this haphazard method of operation. Some companies still maintain that they are including their depreciation in their current repair accounts and make no separate provision for it. The maintenance accounts should then show a higher than the normal average. Seldom is this true of the companies which make this claim. It practically always discloses the general lack of exactness in the administrative policy of the company.

The specific amount must vary somewhat with the locality and the conditions under which the company operates. A company with a hydro-electric power plant should have a lower amount than the company which is entirely dependent upon the generating of current by fuel process. Massachusetts requires a 3 per cent rate for all of its municipal plants.¹ Generally, however, state commissions have offered so many loose decisions that their allowances must be checked with caution.

Mr. H. M. Edwards of the New York Edison Company states concerning the experience of his company:

“A percentage of the book value of the property did not include the element of work done, and a percentage of the gross earnings did not bear equally on the product because of the rate schedules. Upon the latter basis, assuming that the reserve was to be 10 per cent of the gross earnings derived from the sale of electric current; the price to the retail customer would

¹Massachusetts statutes, 1908, chap. 486.

be 10 cents per kilowatt hour; although the depreciation effect of both sales might be the same. The plan of creating a reserve by an appropriation from surplus earnings was disregarded, the reasons of which will be set forth later, and the company finally adopted as its plan a rate of 1c per kilowatt hour sold to its general customers. . . .

“Summing up all the points of the discussion, the following recommendations would seem justified:

“First,—in view of the fact that depreciation in electric light plants is to be an extraordinary extent, the result of super-session rather than of wear and tear, the reserve should be determined by the general rather than the special method.

“Second,—considering the nature of the business, and because of the fact that the entire product consists of electric energy expressed in kilowatt hours, the most feasible way of determining the amount of the reserve is by a rate per kilowatt hour generated sold, according as local conditions apply.

“Third,—in view of the fact that depreciation is a definite item in the cost of operation, the reserve should be built up through operating expense and not as an appropriation from supplies.

“Fourth and finally,—any member company which has not yet provided for depreciation, should do so at once, otherwise the day of reckoning will soon arrive and delay may seriously affect its financial stability.”¹

Earnings.—The proportion of net earnings to capitalization measures the returns on capital funds, but the character of the load factor, the output per capita, and the income per kilowatt hour determine the efficiency in operation. While the low operating costs experienced by some companies can never be obtained by other companies, because of the character of territory, population, and the consequent lower diversity and higher peak loads, the comparative results under similar external conditions are the best indicator of the character of the efficiency in management and what may be expected from the company.

¹The author has reference here in his statement to the general method of the New York Public Service Commission Plan of treating the subject of depreciation as one item, the reserve accumulation being available for any replacements.

H. M. Edwards, *National Electric Light Association, Thirty-fourth Convention*, New York City, May 29, 1911, vol. ii, pp. 180-186. See also recommendations of *National Electric Light Association, 37th Convention, Accounting Session*, June, 1914, pp. 197-198.

INCOME ACCOUNTS (SCHEDULE C)
(National Electric Light Association)
Standard Classification of Accounts
(Only main headings given here)

Operating Revenues		Operating Expense			Commercial Expense	Non-Operating Revenues
Commercial Lighting Commercial Power Municipal Street Lighting Municipal Building— Lighting and Power Sale to Other Public Service Corporations Electric Merchandising Miscellaneous Income	Steam Power Generation Operation Maintenance Purchased Power Steam Purchased	Production Hydraulic Generation Operation Maintenance Purchased Power	Gas Generation Operation Maintenance Power Gas Purchased		New Business	Non-Operating Expense
	Transmission Operation Maintenance Storage Battery	Distribution Operation Maintenance	Utilization Operation Maintenance		General Expense	Deductions from Income
						Schedule D Appropriations Accounts Dividends (Other Appropriations)

Net earnings, at least temporarily, may be made to look favorable by the sacrifice of depreciation, maintenance, or betterments; but the relationships per capita, output, load factor, and income per kilowatt hour cannot be whitewashed. The statisticians of the Commonwealth Edison Company of Chicago have given us some illuminating data upon this side of electrical operation. In the examination of a particular group of cities as well as the general data of the United States Census it was found that as the output per capita increased, the load factors were better distributed and both the income and cost per kilowatt hour decreased. Niagara Falls, for illustration, which had the largest output per capita, had the lowest income per kilowatt per hour. The data, compiled by Mr. Samuel Insull of the Commonwealth Edison of Chicago, shows that the states in the great water power areas, with the exception of Chicago, have a lower income per kilowatt hour, a high output per capita, and a more desirable load factor than cities having artificial power-plants.

Electric-light earnings, as is the case with all public utilities, have the very desirable feature of stability, whether the company is weak or strong. Consequently, if potential earnings can be absolutely assured, the fixity of earnings can always be determined with considerable accuracy. As would be expected, in the early development of the industry considerable abuse was made of this knowledge and impossible future earnings were promised in order to assure a more ready and higher market for securities offered. While some companies, under the conditions of abnormal growth luckily falling to them, have adjusted their finances to a strong basis, a large number of the original participants in these questionable practices are still leveling down the average earnings of the industry to a low mark.

To procure the most comprehensive interpretation of the respective value of the important items in the income statement, the unit costs of producing electric current should be prorated to each one dollar of income namely: (1) the operating cost per dollar of income; (2) the interest charges per dollar of income; (3) the depreciation per dollar of income; (4) the earnings per dollar of income; (5) the income per kilowatt;

(6) the total cost of a kilowatt; (7) the total cost of kilowatts sold; and, lastly, (8) the ratio of earnings and new capital used in the expenditure for betterments.

Costs and Peak Load.—Any one who even superficially investigates the technical side of electrical lighting production discovers that the output in small plants exclusively devoted to lighting, suddenly rises from six to eight-thirty P. M. and then almost as suddenly disappears. This maximum point is termed by electrical engineers the peak load, and one who studies the relationship of this peak load to costs is convinced that its control determines the success of the company. It is the constant burden of the electrical engineer to secure an increasing distribution of electrical currents throughout the day in order to level down this high peak load; *i. e.*, to increase the efficiency of the producing agents of water power or steam.

A simple but very effective analysis by Halford Erickson of an electric-light plant in the experience of the Wisconsin Commission illustrates the influence of diversity in loads upon the reduction of costs:

“To this end,” states this authority, “I will assume a plant that has a capacity of 300 kilowatts; that has an average daily use of the current of about five hours; that has an operating expense, including taxes and interest on the investment, to the amount of about \$18,000 for the year, of which amount two-thirds is covered by the fixed, and about one-third by the variable expenses; and that has a connected load and an instantaneous maximum demand that about equals the capacity of the plant. . . .

“As the total fixed expense remains the same, regardless of output, and as the output in kw. hrs. increases with the increase in the number of hours of daily operation, it must also follow that the fixed cost per kw. hr. decreases with increases in the output. . . .

“In other words, the variable expenses are increasing with increases in the output and not far from the same proportion.

“Since the total variable expenses thus vary with the output or with the hours of daily use of current, it must also follow that the variable expense per kw. hr. is about the same when the plant is used one hour each day as when used three or more hours daily. . . .

“A man having an installation and demand of two kilowatts and using his current only one hour per day, consumes no more

current than a man having an installation and demand of one kilowatt, but who is using his current two hours daily, yet the investment for the former must be twice as great as that for the latter. Under each circumstance it is manifestly clear that the same rate per kw. hr. for both cannot be a just or fair rate. . . .

"These decreases in the cost per unit which follow increases in the sales indicate how extensions in the business may become beneficial to both the operator of public utilities and to the consumers of their services or products. If the sales are extended without any reduction in the rates charged, then the utility alone would be benefited by the reductions in the cost. If on the other hand, the rates are reduced proportionately to the increase in the sales, then the consumers alone would be benefited by the reductions in the cost. If again, the rates are reduced to the extent of, say, 50 per cent of the reductions in the cost, that is caused by the larger sales, then both the utility and the consumers would be benefited by the extension of the business. Increase in the sales, or extension of the business, may then be made the means through which both lower rates to the consumers and greater profits to the plant may be brought about. These facts are exceedingly important and should be given most serious attention by all who are connected with the management of public utilities."¹

A verification of the same principles is also made on the experience of a particular plant in which a close study has been made of this problem. Mr. H. P. Gear says of the Chicago company's experience:

"The cost of electric service is made up of factors which are proportional to the capital employed, other items due to the generation and conversion of the energy which are proportional to the mileage of lines in service, and commercial expense which is proportional to the number of customers served and to the volume of business done."²

Variables exist, for example, according to the distribution and the remoteness of the population, and the ratio of the population that are consumers. But the remoteness of a point

¹Halford Erickson, Rates for Electric Current, in the pamphlet on *Regulation of Public Utilities* (Madison, Wis., Democratic Printing Co., 1911), pp. 13, 14, 15.

²H. P. Gear, The Distribution System and the Cost of Electric Service. Prize Paper in *National Electric Light Association Proceedings of Thirty-seventh Convention*, June 1-5, 1914, p. 683.

Mr. E. B. Lincoln (*The Results of Municipal Electric Lighting in Massachusetts*) states concerning the size of the company and cost of production in Massachusetts: "If one extreme case of Buzzard's Bay,

does not increase the cost at the same ratio. Density of the load, on the other hand, is a far greater influence on the cost of service than remoteness from the central station. When a larger system of trunk-lines is established, the additional cost of adding new users is very small.¹

were left out, the curve would be markedly lower for the companies generating less than 1,000,000 hours than for the corresponding municipal plants. For plants with an output between 1,000,000 and 2,500,000 hours there seems to be little evidence of decreasing costs because of increasing size in either group. This tendency is most marked for plants having 500,000 kilowatt output, although it is plainly to be seen till the 1,000,000 size is reached." (p. 184.)

Samuel Insull in an address before Finance Forum, West Side Y. M. C. A., New York City, Apr. 20, 1914 (published in pamphlet form by Russel Brewster & Co., Chicago, p. 17) stated:

"The average for all customers is 30 per cent for production costs, 14 per cent for substation; 25 per cent for transmission and distribution; 12 per cent for metering, billing and collecting; and 19 per cent for general expense. These percentages include both investment and operating expenses. Further, the Chicago statistics show that the average user whose annual load factor is 32 per cent or whose average use of electric current is seven and one-half hours a day, that out of this 30 per cent production, charges, that 16 per cent is due to investments, 14 per cent to operation and distribution and 6 per cent out of 25 per cent is due to operation, or the total investment charge aggregates 52 per cent and the operating charge 48 per cent of the total. If the load is less than 32 per cent, the investment charges are higher and the operation is lower. The cost of a daily two hour user in Chicago is about three times the cost of the average user and the twenty-four hour user about 40 per cent of the average user, though the decrease of the operating per cent is not as rapid in increased hours as the ratio of fixed charges. Verification of this principle is amplified by the experience of the relation of operation and investment of a large number of small plants, *i. e.*, a very decided tendency in the majority of plants is manifest."

¹Again the average proportions of the income items of revenue and expenses compiled by Mr. Lincoln are interesting. (The following figures are a few selected ones taken from more complete tables. The student will find Mr. Lincoln's work on Massachusetts electric light plants worth careful study [p. 183]. The Massachusetts State reports are much more complete than those of any other state and offer the most comprehensive data for intensive study):

Operating Expense per K. W. Delivered:

	Private Companies	Municipal Owned Co.
Total Expense	3.572c	3.766c
Taxes	0.428c	.....
Salaries	0.197c	.....
Total—taxes deducted	3.144c	3.766c
Total—taxes and salaries deducted.....	2.947c	3.766c
Cost of Distribution	0.648c	0.782c
Cost of Manuf. (per K. W. H. made).....	1.376c	1.829c
Labor at Station (per K. W. H. made).....	0.408c	0.626c
Fuel (all kinds) (per K. W. H. made).....	0.808c	0.915c
Coal (per K. W. H. made)	0.742c	0.933c

Relation between Investment, Depreciation and Repairs (p. 220).

*Rates.*¹—From the peculiar conditions determining the cost of electrical current, it is apparent that rate schedules which are based on any other consideration than the cost of service will both be unjust to the consumer and check the development of the business. Where the security of the issue seems amply protected and interest charges are sufficiently covered, the inclination, even of many underwriters in the past has been to pay no heed to the subject of rates. This is no longer true. Underwriters of electrical securities are now forced to give it the most careful attention.

As has been pointed out, the cost of electricity is made up of two classes of expenses; namely, variable and fixed. The former is governed by the amount of the current sold and the latter by the maximum demand. Thus, if the consumer desired to use current for a greater number of hours, this would increase the output without demanding an increased capacity of the plant. The fixed investment would not have to be increased and thus the company would be affected only by the variable expenses. On the other hand, if the maximum demand increases at a faster rate than the increase in output, the costs usually increase, as the fixed expenses are the greatest, though these conditions vary with the factors affecting the operation of every plant.

The injustice of the flat rate as against the equity of the rate built on approximate cost is apparent. For illustration, if the flat rate were used, a man would be charged the same price for 2,000 kilowatts whether used in one hour or ten hours, though in the former case, there is demand for twenty times as much plant capacity, *i. e.*, fixed investment. If the output

(Only the average of 1910 to 1915 is given.)

	Investment in Plant in 1915	Depreciation Per Cent to Investment	Repairs Per cent to Investment
Municipal Cos.....	\$2,923,825	3.0%	3.1%
Private Cos.....	5,284,275	3.2%	2.4%

(Both the depreciation and repair accounts for private companies show a steady decrease for the period, though the investments in plants of the companies doubled, while municipal owned plants increased slightly over one-half million.)

¹*United States Census Electrical Industries* (Chapter on Technical Aspects of the Industry), gives in detail the rates which are allowed in the respective states.

increases with the diversity of the load, a lowering of the rate will not be as serious a menace as when the rate is lowered and the company does not possess this advantage.

Thus, while the increasing and lowering of rates will always have an effect upon the investment status of the investor's holdings in electric light plants, a very wide degree of difference will result. And as soon as investors have awakened to the full significance of these influences, Public Utility Commissions will be forced to temper their decisions in a greater effort to protect the investment holdings.

Some General Characteristics of the Franchise.—It seems only necessary to indicate the features in the franchise which are peculiar to the manufacture and distribution of electricity. The danger from the overhead wiring, still comprising the major part of the wiring for electric lighting companies, was recognized, and specific regulation placed in the franchise to minimize these dangers. While the danger to life is minimized in the use of underground conduits, the losses from electrolysis have forced the adoption of other safeguards which are an additional expense. In addition to these extra maintenance charges, what additional construction and maintenance charges can the city require in the future? For example, a company which now has cheap overhead construction may eventually be forced to replace it by underground conduits which may result in a large increase in costs. This would be especially true of the smaller sized companies. Damages to person and property might also become too heavy a charge to a small company.

A large enough plant must be maintained to provide for the peak load of the day, which may exist for only two or three hours at the most. During the other twenty-one hours, the greater part of the plant is shut down. The failure on the part of the public to appreciate this problem of fixed investment in idle property to supply its needs for a very short period of the day is often responsible for unreasonable demands. And an understanding of this peculiar situation in these companies would often prevent unreasoning opposition to justified rate increases. The problem is further complicated by the granting of special rates for particular purposes. When a

trolley system is furnished with current, the curve of the peak load is even higher and more abrupt, as the rush hours occur at about the same time as the heaviest lighting requirements.

With the development of water-power and the long distance transmission of electrical current, the industry is at times subject to inter-state regulations. And with the interurban companies, the difficulties and differences in dealing with several municipalities increase the problems of the management. With the greater appreciation of the monopolistic character of the industry, the danger from varying expirations of charters is not fraught with the dangers of cancellation of these charters that existed twenty years ago. Yet it is much better that no important charter expire before the bond issue. The greatest difficulty is the tampering with the existing practices and rights of the charter where a number of cities are served. Here again the broader power of the Public Service Commission has prevented many of these handicaps which would otherwise have come to the front.

Companies now having franchise rights in the city are seldom endangered by the competition of several other companies after they have constructed plants and equipment for the expanding demand of several years. There is scarcely a city in the United States which has not granted several companies franchises to furnish electric lighting. When the Chicago City Council granted the present charter to the Commonwealth Edison Company, May 23, 1908, twenty-five franchises, owned or controlled by as many former companies, were included in the ordinance. The National Civic Federation claimed to have found forty-seven electric light franchises which were granted by the city, and according to this report it did not complete the examination of all of the city's records.¹ In the consolidation with other public utilities this same condition may exist, though not nearly to the same extent as with the consolidation of electric light companies themselves. It is consequently needless to emphasize the relationship of the bond issue to the duration, rights, and powers of the franchise.

¹National Civic Federation, *Report on Municipal and Private Operation of Public Utilities*, Part II, vol. i, p. 719.

The Market for Electrical Securities.—Despite the phenomenal growth of the industry, public utility securities have not been purchased by a very large group of individual investors. As late as 1913, Mr. Frank A. Vanderlip made the statement that not over twenty per cent of the individual investors have bought electrical securities.¹ This twenty per cent, however, included the majority of the large individual and institutional buyers. Institutional buyers have, ever since the organization of the electric lighting industry, furnished the largest market for these bonds. The greater part of the common stock has always been and continues to be largely held by small groups of controlling interests. But the market, since 1905, has been developing at an increasing rate. This has resulted from the education of the public concerning the opportunity offered in these securities, and another twenty years will see as wide a pro rata distribution to the total holdings as any class of securities exclusive of municipal securities. The influence of commission regulation and the changed policy of publicity, and the effort to court public favor, have probably been of as great importance in effecting this change of public attitude as have any influences.

Where the capitalization is reasonable and the management likewise conservative, the advantage in a narrow range of price fluctuations is soon appreciated by the conservative investor. And when the basis of regulation is better understood so that due allowance is made for equitable returns under the varying conditions affecting individual electric-light corporations, the effect on market distribution of all well-managed companies will be far-reaching.

¹*Electrical World*, vol. lxii (1913), p. 535.

CHAPTER XXI

GAS COMPANY BONDS

History and Present Position.—The initial use of gas for lighting in the United States was made by Mr. David Melville of Newport, Rhode Island, who employed coal gas for lighting his own house in 1806.¹ The first commercial gas company, however, was not organized till ten years later in Baltimore. Boston and New York City followed in 1821 and 1822; Brooklyn, New York, and Bristol, Rhode Island, in 1825; and New Orleans, in 1853. The slow development of gas-lighting is illustrated by the action of Boston, which after ten years had only twenty public gas lights, and it was not until after 1850 that any considerable advancement in the industry took place. Vigorous opposition was made against the building of gas works on the grounds that they endangered the health and the lives of the people. As late as 1833 the city council of Philadelphia received a petition signed by several hundred people protesting in most vigorous terms against the use of gas. Petitions of similar character were also filed with the councils of other cities and towns.

Serious obstacles in the development of new companies were also experienced in the difficulty of securing capital. The only experience the public had had with public utilities was with the water-works companies, many of which had not had an enviable reputation, and the public was skeptical of the outcome. Internal improvements during this initial period were also making a strong bid for capital and the public was so possessed with the idea of quick and extraordinary wealth, that investors often placed all their available funds in purely "paper enterprises." This lack of capital, and the ignorance of the

¹William Murdoch in 1798 lighted the Soho Foundry at Birmingham, England, with gas. (W. J. A. Butterfield, *Lectures on the Chemistry of Gas Works* [1913] p. 17.)

commercial operation of gas plants especially in the attempts to operate too small plants were followed by a large number of failures¹ of gas companies which gave a decided set-back to the industry for several years. As a result of these handicaps, the number of gas plants up to 1850 had only reached thirty with a capital of \$6,674,000, and an output valued at \$1,921,746. The greatest development came after 1885 when the competition of oil, natural gas and electricity forced the development of cheaper processes for manufacturing artificial gas. Prior to this, by-products which now are utilized and greatly reduce the cost of production were discarded as useless, thus making the high production costs of gas a serious obstacle to its use.

Less than one-half of the cities and towns in the United States, over 1,500, have artificial gas manufacturing plants, and approximately one-third of the gas manufacturing companies are operated in connection with electric-light plants. The most recent compilation by Mr. Lansley, which is already old, gives the growth from 1850 by decades to 1910.

Year	Number of Individual Plants ¹	Capital Employed	Value of Annual Product
1850	30	\$ 6,674,000	\$ 1,921,746
1890	742	258,772,000	56,987,000
1900	877	567,000,000	75,717,000
1910	1296	915,537,000	166,814,000
1920	(estimated) 1400	1,100,000,000	225,000,000 ²

The increase in the total income from 1900 to 1920 was approximately six times that of the previous decade. And this increase in income from 1900 to 1920 was secured in face of a reduction in the price of gas. The extension in the number of companies from 1900 to 1910 was nearly one-half of the total increase in the number of companies for the previous fifty years from 1850 to 1900.³ The extraordinary growth in gross income of recent years has largely resulted from the industrial uses of gas by manufacturers together with the increase of the by-

¹Arthur L. Hunt, *Twelfth, United States Census Manufacturers*, Vol. X, Part IV., p. 713, and *Thirteenth Census*, Vol. X, p. 637.

²On estimated growth of the previous ten years (author's estimate).

³Arthur L. Hunt, in *Twelfth Census*, on Manufactures, vol. x, Part IV., p. 703.

products which have been developed in the industry. Gas can be used in generating all other types of power and will produce more heat and power from a ton of coal than could be produced if the same ton of coal were used directly for this purpose. The phenomenal increase in the use of fuel gas engines since 1900, is itself demonstrative of the future industrial possibilities of gas.

The perfections in the refinement of crude oil which greatly reduced the price of kerosene oil and the improvements in oil lamps about the middle of the last century brought the first serious competition to the use of gas. In spite of its greater convenience, gas at the ruling high prices was not able to compete with kerosene oil at its prevailing low price. Also the utilization of the residues of gas production, which now makes it possible to sell gas so cheaply, were then almost wholly unknown.

When the use of artificial gas again began to increase under the stimulus of the improvements instituted after 1880, electricity, the most powerful competitor of gas, entered the field. The cheaper installation, cleanliness, convenience and cheapness of electricity soon forced it to the forefront. About the same time, natural gas was piped into the cities, and the cheapness with which the installation could be made forced a number of artificial gas-plants out of business. But the frequent short life of the natural gas supply has in most places sooner or later caused the cessation of operation and again forced the use of artificial gas. Though natural gas was used as early as 1821 for lighting the village of Fredonia, New York, it did not become an active public utility until 1833.¹ Twenty-one states now produce it in varying quantities, though only five can be termed large producers, namely, Indiana, Kansas, Ohio, Pennsylvania, and West Virginia. The great draw-back with the natural gas companies is sudden exhaustion of the supply which may take place at any time. This is especially true where several municipalities use the same supply. Corporations which supply natural gas and do not make provision for the ultimate exhaustion of their gas-wells must, of course, lose their original

¹*Special Reports, United States Census, Mines and Quarries, 1902, p. 773 seq.*

investment. The chief safeguard is the purchase of a large group of scattered properties and the ownership of some artificial plants, together with ample provision for the future construction of additional artificial gas-plants. Proof of the rapid diminution of natural gas is evidenced by the fact that five times the quantity of natural gas was used in 1888 as in the last ten years.¹ Also, where the gas must be piped long distances, there is danger of litigation; especially is this true where the owners of the production company may be a distinct organization from the piping company. As no natural gas is stored, the piping system must be of sufficient capacity to furnish an adequate supply. Where large supplies of natural gas exist, it is extensively used for heating as well as for industrial purposes; hence the consumption becomes very large in the winter months. So serious has been the danger of inadequate supply in winter in certain localities that industrial plants use gas only during the summer months.²

Competition with other forms of lighting, however, has enlarged the use of gas by stimulating the inventions for cheap production, especially the cheapened process of manufacturing water-gas which has led to an increasing consumption of it for cooking and industrial purposes. People have also become accustomed to the use of electricity, and this has also encouraged the further use of gas. The hope for the greater expansion of this industry for the existing companies, however, lies in the extension of the use of gas for fuel and heat.

Industrial Uses and By-Products.—There are five kinds of manufactured gas, which are principally used for lighting, heating, and general industrial purposes. They are coal-gas, coke oven gas, carbureted water-gas, the combinations of mixed gas, and oil-gas. The coal-gas is made by the distillation of coal which is heated in retorts. A pound of coal makes about five cubic feet of gas, which have a heat value of 550 to 630 B. t. u. per cubic foot.³ The coke oven gas, which is really a coal-gas, is

¹*Ibid.*

²*Ibid.*

³b. t. u.—The British thermal unit which indicates the heat necessary to raise one pound of pure water at 39° F. one degree.

a by-product of the manufacture of coke, and its heating value is lower than that of the coal-gas. Water-gas is made by forcing steam upon glowing fuel. This is enriched with oils, and a gas is generated which is known as carbureted water-gas. The heating value ranges from 500 to 650 B. t. u. per cubic foot. The combination of any of the above forms of gas is called mixed gas. The different constituents are united by a mechanical process. In or near some of the oil fields, gas is made out of crude oil. The greater part of the gas used for lighting purposes in this country is the carbureted water-gas. If, however, the price of oil continues at its present high level, water-gas will not have the advantage it possessed over coal gas, prior to the European war, unless the enrichers are eliminated. With the eventual elimination of the enrichers of water-gas (petroleum, cannel coal, or naphtha, which are no longer needed) and the increased use of mantles, the cost of water-gas lighting will be greatly reduced.¹ Considerable controversy is still waged over the necessity of these enrichers, which are still required by all franchises or city ordinances. Once the public fully appreciates the distinction between the light and heat values together with the use of incandescent gas-lighting, it will accept the elimination of these old requirements. The Bureau of Mines has also found a number of cheap grades of coal that will produce gas but give a low heat value; this difficulty no doubt will eventually be overcome by chemists.

The important residuals or so-called by-products of the artificial gas manufacturing industry are now considerable in number, and the limit has not yet been reached. The war demand in the United States for chemicals which were formerly secured from Continental Europe, especially Germany, stimulated the chemists in this country to search for the recovery of by-products. Much of the skill which was directed to the recovery of chemicals for explosive purposes is now being utilized in ex-

¹*The Annual Report of the Peoples Gas Light and Coke Company* for 1916, p. 8 (Chicago, Ill.), states: "An increase of 1c per gallon in the price of gas-oil means an increase of nearly 5c per 1,000 of gas made or an annual expense of approximately \$800,000 (more than 2% on outstanding capital stock of the company"—[\$38,500,000]). If public utilities would publish more facts of this character it would do more than anything else to create the goodwill of the public.

perimenting on the gas wastes for future discoveries of chemicals for industrial purposes.

The more important by-products from the coal-gas industry are coke, carbon, gas-tar, ammonial liquor, and the spent purifying materials, either lime or oxide. In the production of water-gas, the by-products are purifying materials and tar, with a small amount of ammonial liquors; and in the oil-gas production, tar, lampblack, and spent purifying materials. Varying with the methods and processes used, the ammonial liquor yields different types of chemical products. The profit from these by-products also depends on the processes and methods used. Because of the importance of these by-products the income from by-product sources should be separated from the income from the sale of gas. This is necessary to determine the plant's efficiency in the production of its by-products as distinct from the sale of gas.

The major part of the artificially produced gas used for fuel is still employed in households. The increase of gas for purely industrial purposes is still to receive its larger development. With the increasing cost of producing coal, the higher heat energy of gas may soon offset the disadvantage of its being higher in price than coal.

Population and Its Relation to Service.—In no other public utility are the number, character, and distribution of the inhabitants more important than in the gas companies. It is relatively a simple matter for an electric-light company to adjust its equipment to the needs of outlying territory, but with a gas company, not only is the normal outlay for construction greater, but adjustments can be made only within very narrow limits. The more concentrated and at the same time evenly distributed the population is, the more effectively can the distributing mains be utilized; and the larger the quantity of gas consumed, the cheaper can gas be manufactured. An examination of the population and its distribution then becomes our first consideration in a study of gas securities.

An examination of eighty companies selected at random throughout the United States shows most conclusively that the

cost of producing gas in cities below 60,000 increases approximately at an inverse ratio, as the cities decrease in size.¹ The limit of 60,000 is probably not an absolute one, but the relation between the decrease in cost of production and the increase in population is beyond dispute. With four exceptions, towns below this limit sold gas at a higher rate. All of the cities below 50,000 population showed a rate from one and one-half to as high as slightly over three times as great as the cities with over 70,000 inhabitants. In the majority of cases, there also seems to be a very positive tendency in this group of cities, where data were available, for a fairly direct ratio of decreased costs with increase in concentration, but sufficient data could not be obtained to warrant the assumption of a principle in relationships, though the tendency seems quite positive, and logically this would be the expected result. A very widely scattered city will also discount very appreciably the advantage which the city may have in larger numbers.

The exceptions to these general principles of population and cost of output, as with all principles of investment, must not be overlooked. For example, a few of the Southern cities with a very large poor colored population will compare unfavorably with a New England city of similar size. This is especially evident where this poorer population is scattered through various sections of the city and thus affects a low return on the main mileage, whereas, if this population is concentrated, the gas mains are more effectively used. To the extent to which economy of distribution is procured the latter handicaps are overcome. But where distribution or the character of the population does destroy the operation of these principles, it is a relatively easy matter to discover the causes for these differences.

To the investor, the fact of immediate importance is that very few towns operate gas companies as a municipal enterprise. Practically all of the very small non-dividend companies are owned by local interests and fostered by one or more pub-

¹This is also borne out by the quotation cited from Mr. Rufus C. Dawes and also by the reports of the State Commissioners of Gas and Electric Light Companies in Massachusetts within slightly different limits. The data for the latter may be procured from the Massachusetts Board of Gas and Electric Light Commissioners, the most complete and accurate of any of the state commission reports.

licly interested individuals. Among the non-dividend paying companies of the higher population group, other causes exist.

While the same general tendencies are to be found in the earnings of natural gas companies in relation to population, the ratios are entirely different. The tendency for the ratio of margins to increase with the increased output, however, is very much greater in natural gas companies than in artificial gas companies. There are so many variables entering into the control of costs of natural gas that while this tendency is very pronounced in the whole group, there may be wide variations in the costs within each division of companies in the group. But this fact only necessitates an analysis of the other factors used in determining the values of gas companies.

Gas Rates.—Gas rates until recently have been continually lowered since 1850. It was not till the beginning of 1915 that these decreases were checked as with all public utilities under the influence of the enormous increase in production costs. This reduction was brought about by the cheapened process of gas production, the utilization of by-products, and the competition of electricity. Contrary to popular belief, public demand for cheaper rates has been a very small factor in this movement; the corporations themselves have been responsible for these reductions. The reason is obvious. To secure sales, the competitive prices of electricity had to be met. This reduction is the more interesting in that it has been maintained in face of the general rise of prices since 1897.¹ The striking reduction in the price of gas is well illustrated by the experience of New York City; in 1826 the price was \$10.00 per thousand cubic feet; in 1846, \$6.00; in 1866, \$3.50; in 1901, \$1.00; and in 1906, \$.80, for general public lighting purposes.²

A practice, at present, in charging for gas is to use the sliding scale, allowing for a lower price with the increased consumption of gas. Wholesale rates as low as \$.50 and \$.80 per thousand for artificial gas have not been unusual where it has been used for both fuel and lighting purposes. Under the

¹*The Massachusetts Cost of Living Report* (1910), p. 164 (House Doc. 1750). See also last *United States Census Report*.

²For other prices see *National Civic Federation Report*, Part II., vol. i, p. 470.

stimulus of competition some inventions will no doubt reduce the price of gas to an even lower level, though for the immediate present this is impossible with the increased costs of raw products. It must be remembered, however, that the comparison of production costs and gas rates and general prices must always be relative. While a number of companies have been forced to reduce their rates by city councils and commissions, the reductions have been more than offset by the gain in the economies of production. Concerning the apprehension before the war period of a further forced lowering of gas rates, Mr. Lawrence Chamberlain states: "From a careful survey of the rates of one hundred and seventy-two companies in the principal cities of the United States, extending back over a period of twenty-three years, it is possible to state with authority, that there is no present marked acceleration to the decline in prices. Rather that the scaling has been fairly constant for the period in such companies as had to meet the competition of natural gas."¹ Since 1918, a recognition of the burden of increased costs has forced a positive upward trend in rates. Some municipal administrations, due to political pressure, have failed to respond as quickly as they should to the companies' needs for increased rates, but this attitude cannot long continue.

Earnings and Cost of Production.—The form of Income Statement recommended by the American Gas Institute² is

¹Lawrence Chamberlain, *Principles of Bond Investments* (1911), p. 344.

²INCOME STATEMENT*

(Only main headings given)

Operating Revenue	Promotion Expenses
Gas Sales	Commercial Expenses
Street Lighting Sales	General Expenses
Municipal Buildings used by company	Street Lighting Expenses
	Taxes
Operating Expenses	Total Operating Expenses
Coal Gas Production	Non-Operating Revenues
(Less Residuals)	Total Net Operating and Non-
Water Gas Production	Operating Revenues
(Less Residuals)	Income Deductions
Total Coal Gas, Water Gas and Gas Purchased	Interest
Distribution Expenses	Rentals
(Includes Maintenance)	Sinking Funds
	Payment of Dividends
	Rendered to Profit and Loss

*Report of the Committee of *American Gas Institute on a Uniform System of Accounts for Gas Companies* (September, 1914, p. 128).

sufficiently detailed and comprehensive for one to make a close analysis of the source, character and relationship of earnings, expenses and charges. Not many gas companies, however, give sufficiently detailed income statements to furnish this essential information. Balance sheets and property accounts more frequently contain complete enough data to warrant positive conclusions as far as fixed assets are concerned. But without an income statement, few worth-while deductions of any consequence can be obtained.

The most comprehensive test of the effectiveness of earnings, in relation to both property and capitalization, is made by means of unit comparisons. Aggregates in the income statement are valuable for estimating the whole, but they do not as quickly reveal the particular points of weakness or strength which, as already demonstrated, are what an analysis must give or fail in its purpose.

Technical unit analyses for gas companies have the same purpose as for other utilities. In the application of these units, the limitations of their use must be observed both in the comparisons of different years of a company's own record, and in the comparisons with other companies.¹ Peculiar local conditions, changes in rates, growth of city, size of company, new inventions, and processes of productions, etc.,—all will necessitate a different emphasis upon particular units. The operating rates and other technical factors applying to the general report of any company should also be applied in the analysis of the gas company, together with the special features already discussed.

The population per mile of main and consumers per mile of main are measures of the effectiveness with which the company is serving the community. If the quota of population per mile of main is large and the number of consumers is small, it indicates either that the company's selling organization is defective (and this is a reflex of its whole organization) or that prices are prohibitive, or that the character of the population may not allow a very high rate of consumption. If both consumers and population are large, effective distribution is signified, but this may also mean that the maximum expansion has been

¹*National Civic Federation Report, 1907, Part I., vol. i, p. 208.*

approached unless the city is rapidly growing or the rates are lowered for industrials. If population and consumers are both low per mile of main, it suggests that the population is either widely or unevenly distributed. When the ratios of population and consumers are known, another basis is given upon which may be checked the amount of the capital expenditures, as well as administration and operating expenses. Normally, as stated in a subsequent quotation from Mr. Rufus C. Dawes, a very decided tendency to increase is to be expected in the proportionate outlay of expenditures to earnings as the cities increase in size above 50,000 inhabitants.

Sales per unit of main may not necessarily be a standard base for comparison. If, for example, prices should vary or the proportion of gas at lower prices for industrial purposes be increased relative to the total consumption, any comparison of sales would be totally misleading. If the sales for lighting and industrial purposes can be separated and the proper allowances are made for these differences, the sales unit becomes a valuable measure of a company's growth. It is well under any condition to have all of the important sources of income separate. A more accurate measure per mile of main measurement is found in the net profits. The final fact which the investor wants to know is the net yield on his investment, and regardless of what other exceptions must be made, the net return requirement cannot be qualified.

Per capita earnings and per consumer earnings, frequently used to measure the effective utilization of the property investment, may be useful checks to the mile of main measurements, but so many qualifications must be observed that it is doubtful whether they should often be used. Errors, however, are less apt to occur in their use in this connection than with electrical properties.

What has been said of population, earnings, and the cubic feet of gas sold per mile of main also applies to total capitalization and its separate items of bonds and stocks and the amount of the property investment. The only advantage which this

method of testing possesses over a direct comparison is the one so often mentioned—it makes a more comparable basis of estimate for the average analyst.

Mr. Rufus C. Dawes in an address before the Investment Bankers Association well summarized the uses and limitations of these measurements in a discussion of the cost of production: "Such items of operating costs as interest and dividends required, also maintenance, and in a large measure, general distribution and administration expenses, bear a fixed ratio to the mileage of mains or capital invested—none necessarily to the amount of gas sold. Take a company in a certain state of development, double its business and you reduce the cost per thousand feet to manufacture. But the cost of manufacturing gas rarely exceeds one-third the total cost of gas delivered, including a fair rate of return. A material increase in sales without a material increase in mileage mains, decreases the cost of items aggregating two-thirds of the total cost, in almost an inverse ratio.. In many places in this country, natural gas is being sold at rates so low as to displace coal as fuel. In such places, it may interest you to know that the cost per thousand feet of such items as interest, maintenance, distribution, and administration is about five per cent of the cost per thousand feet of the same items for artificial gas, for the reason that at such prices, there is about twenty times as much natural gas sold per mile of mains as there is of artificial gas. The lower prices in these cases brought a larger output per mile of mains and established a lower cost per thousand feet, so that the cost per thousand feet of gas was determined chiefly by the price at which it was sold. . . . But before prices are reduced the cost of the service to be displaced must be studied, for a reduction in price that is not accompanied by an increase in business would merely reduce net earnings."¹

Costs of production for the smaller cities and towns are also decidedly affected by their proximity to the source of their raw supplies. A study of the geographic location of the largest

¹Rufus C. Dawes, *Proceedings of the Third Annual Convention of the Investment Bankers Association*, Philadelphia, November, 1914, p. 184.

cities will show that they are located near coal supplies or are in touch with these supplies by short and cheap water transportation. Many of the smallest plants, regardless of other advantages they possess, must always operate under this handicap and the higher price they must pay for smaller quantities of raw products. While general cost figures, especially in these days, must be used with caution, they offer some suggestions. The Massachusetts Board of Gas and Electric Light Commissioners, to which every one is eventually forced to resort for data which may be considered reliable, gives much interesting and valuable data to any one desiring more complete knowledge of gas company finances and costs.

Capitalization and Property Accounts.—In the commercial companies the distribution of the investment is approximately as follows for the United States as a whole: 30 to 35 per cent in common stock and 5 per cent in preferred stock. With the increase in the size of the company, bonds, as a rule, form a larger proportion of the capitalization. While the value of the output has increased approximately 150 times, rates have decreased from an average of \$6.00 per 1,000 cubic feet in 1850 to an average of less than \$2.00.

As with electric light companies, the persistent lowering of rates on the companies' own initiative tells the story of the increased efficiency in the utilization of the capital funds. But, again, the rapidly changing prices of materials and the uncertainty of the regulation of rates make these conditions one of the most important qualifications to any conclusion affecting capitalization. Even prior to the European war, the average rate of return for the country on capital stock was not adequate. The small non-paying companies, which would not be included in the investment group, are, of course, accountable for bringing this average down. The only fair generalization would be an average of the companies which could be included in the investment group.

The lack of separation of the items of land, buildings, and other property accounts in the great majority of financial statements, often necessitates a revamping of these accounts to make

a complete analysis possible. Without this kind of statement no estimate can be made of the adequacy of the depreciation accounts. In the incomplete statement, the net book value can be given unwarranted emphasis, as the property account may never have been depreciated. This separation is valuable from the standpoint not only of analyzing the particular accounts, but also of discovering the weak places in the management. While the system might fulfill all normal requirements, other parts of the investment in the property might be inadequate, *i. e.*, out of proportion to the standard requirements. With the exception of those of the Massachusetts Board of Gas and Electric Light, state reports shed little light on this problem and offer little in the way of concrete guidance.

The average ratio of land and buildings to the total investment is about 20 per cent, while machinery, tools, and other equipment total about 65 to 70 per cent, with current assets making up the balance. In the second group of items, the ratio has been growing larger owing to the increase in the manufacture of by-products; and this ratio is likely to continue on the up-grade. Any increase of expenditure for fixed property beyond the normal ratio to the quantity of gas sold should result in more than a proportionate increase in the returns from the by-products, to warrant these expenditures.

The continuous peak load in production is just as essential in gas production as in electric lighting companies if the most efficient utilization of the plant is to be secured. On the other hand, when large expansions are to be made, the same elastic adaptation cannot always be made to the immediate as well as future requirements of gas companies as easily as with electric lighting companies. Greater costs in gas equipment are necessitated by the more permanent and larger anticipation of future expansion, so that the immediate rate may not only be cut in proportion to capital expenditures but the attaining of "expected returns" on the new expenditures is slower. This condition makes it the more difficult to estimate the limitations on expansions in order not to go beyond the saturation point. A decreasing growth in the volume of business must not necessarily

be viewed with alarm any more with gas companies than with electric light companies, though it must be considered in analyzing capital expenditures.¹

Depreciation.—Of most immediate interest in the depreciation and maintenance of gas plants, as with other public utilities, is the relation of these factors to rates. The testimony of experts and the judicial decisions are somewhat in conflict. Presumably the only safe means of insuring accuracy concerning a particular company is an examination of the public utility commission and court decisions of the state having jurisdiction over the company. Fortunately, this information is not difficult to obtain, though it is not always complete. If this is the safest guide, it is not necessary to discuss the method or justice of the method here, but merely to ascertain whether the company has adequately complied with the statutes or decisions of the governing bodies. Whether the amount deducted for depreciation is sufficient to cover requirements, should, of course, be checked.

In the case of the Lincoln Gas and Electric Company, Justice Luston states: "Heretofore, it seems to have been so well and continuously done that the value of the plant as a whole has suffered less than one per cent per annum, if the total depreciation be distributed through more than thirty years of operation."² In the Cedar Rapids, Iowa, gas rate case, the court states that 1.7 per cent of the value of the plant per annum put in a 4 per cent sinking fund, would reproduce the plant in thirty years.³ Mr. William J. Hagenah, in his report on the People's Gas Light and Coke Company, fixes the depreciation on the basis of earnings as follows: "On the basis of the above composite life of thirty-five years and the assumption that an accumulation for depreciation would be able to earn 4 per cent, it would be necessary to set aside for this purpose, 1½ per cent of the total depreciable property each

¹See Capital and Property Account of Electric Light Companies, chap. xx.

²Lincoln Gas and Electric Light Co. vs. City of Lincoln, 223 U. S. 349, Feb., 1912.

³Cedar Rapids Gas Light Co. vs. Cedar Rapids, Iowa, 426, 120 N. W., May, 1909.

year . . . While this amount would be sufficient to meet replacements as they normally occur, it is probably due to the uncertainties of a business which extends over seventy years into the future that some allowance must be made for contingencies . . . an annual allowance of 2 per cent on the depreciable property is sufficient to cover this requirement."¹ The Massachusetts statutes for municipal lighting plants require an allowance of 3 per cent on the cost of the plant exclusive of land and water power. This may be decreased or increased by the Board of Gas and Electric Light Commissioners.²

Special Features of the Gas Franchise.—The serious objections to the gas plant in any locality and to more gas mains in the streets than are necessary, because of the additional dangers involved, have resulted in the granting of more exclusive privileges in the franchises of gas companies, as a class, than to any other public utility.³ These privileges were especially broad in some of the earlier charters which were granted by special legislative enactments. As gas organizations first originated during the period of charter grants by special legislation, the powers, because of political influences, were likely to be much less limited than under the later general corporation law.

Many of the later franchises provide for the purchase of the company's property and franchise by the city, and often give in considerable detail the conditions under which the plant can be purchased. The fault with many of these details is their vagueness concerning the valuation which shall be placed upon the property for purchase by the city. These clauses are also becoming increasingly important, as more emphasis is now placed upon property values and capitalization as a basis for rate purposes. It is not likely, however, that a company would suffer long from too low rates even under such a franchise as that granted Saginaw, Michigan, which gives the city the right to regulate the price at intervals. It may temporarily feel the

¹William J. Hagenah, *Report on People's Light Gas & Coke Co., made to the Chicago City Council Committee on Gas, Oil and Electric Light*, April 17, 1911.

²Massachusetts Revised Statutes, 1908, chap. 486.

³Delos F. Wilcox, *Municipal Franchises*, vol. i, p. 536.

pressure during such a period of rising prices as that following the outbreak of the World War, so frequently mentioned. Political influences may temporarily check the legitimate price adjustment by wilfully using the stock arguments that the gas company is a trust and monopoly usurping public rights. Because of the persistency with which we cling to customs, the company's rights can for a time be made a political football. The utility in the long run, however, has succeeded to its rights. Public utilities further have come to appreciate the value of complete publicity which, if correctly used, will lessen more and more the possibilities of these hardships upon the company. The last ten years have developed a public viewpoint which will be of inestimable value to all classes of public utilities. Under both the pressure of public opinion and the check of the higher courts, commissions have come to a realization of their function. Again, the important thing, as with all public utility control, is; what is the character of the regulatory statutes? What commission rulings have been made under these statutes? Have the higher courts sustained the rulings of the commissions? Because of the greater age of the gas companies, more court decisions exist affecting general policies and fundamental principles of the gas rates than for rates of other utilities.

The question of rates, as affected by "heat-giving and light-giving" qualities and pressure as included or not included in the franchise is of extreme importance. It has been a practice with some gas companies to cheapen the quality when a decrease in rates was allowed and thus maintain the margin of profits. Except where new inventions or processes have made cheaper production possible, continued holdings in such companies are questionable, unless there are other offsetting factors, for a demand for better quality will eventually take place and result in a lower margin of profits.

Bond Characteristics, Character, Market and Yield.—These bonds are covered by a wide range in security, and can satisfy demands for the most speculative or for the most conservative risk. They extend from the security of the company which is merely run for the convenience of a hamlet to that of the metropolis of New York. And a whimsical investor or specu-

lator indeed, he would be, who cannot be satisfied with a selection in this catalogue of securities.

In recent years, gas securities, with a very few exceptions of some of the very largest companies, have never been as favorably accepted or had as wide a market as other public utilities. A large group of conservative investors have shunned them altogether for a number of years. Three reasons may account for this attitude: First, the rapid development of the electrical industries captivated the general investing public by their future possibilities and high yields, and this condition fostered the idea prevalent in the early days of electricity that gas properties would as a result be stifled under the uneven competition, and become poor paying properties. Secondly, outside of the largest companies, the majority of the securities have never experienced a wide market. Thirdly, the localization in the marketing of the first securities issued by gas companies continued to be an influence, though a very minor one, in determining the market for new securities of these same companies. But because of the ability with which gas companies have held their own and despite the odds against which they had to compete with electricity, gas securities of merit are now coming into their own.

The set-back they have suffered, however, since 1916 can be, as with all public utilities, only temporary. Price adjustments must be made. These changing attitudes toward gas securities are an interesting illustration of the increasing recognition that the adherence to sound principles, and not the class of securities, determines the value of a security.

With this wide range in the classes of gas bonds, there is, as a result, a considerable range in the net yield. The cause of this variation can be attributed to the location of the company, breadth of the market, and the convertibility, this latter being largely determined by the preceding condition. The yield, the strength of security having been determined, must be dependent on the basis of whether the security must be quickly sold or whether it is to be held till maturity, regardless of the market changes.

The decided advantages in the purchase of bonds of the

larger cities should again be suggested in relation to the security of the bonds. And to the extent of this influence on the security of the bond, the ratio of the indebtedness to the value of the property should be fixed. To state, as a number of popular writers have done, that the bonded debt should be 50 or 60 per cent of the value of the fixed assets may be absolutely misleading. A bonded debt of 75 per cent in one company is often a very much safer proposition than the bonded debt of 30 per cent upon another company. Certainly a high per cent of funded debt upon a well managed gas company in a city of half a million would be very much more desirable than a much lower bonded debt upon a town of one thousand inhabitants in some western state. The higher rate in the large city might alone be warranted because of the appreciation of values due to the growth of the city. The ratio, as in every other company must be fixed on the basis of the status of the company. The stability which the higher grade of gas bonds showed in the panics of 1903 and 1907, and the depression of 1914, removes any doubt of their soundness when well selected.

CHAPTER XXII

HYDRO-ELECTRIC POWER BONDS

Development.—Water-power for industrial purposes has been used for more than three thousand years. From the time the primitive undershot and overshot water wheels were used till the turbine water-wheel was introduced and electricity could convey this power, the water-power industry developed very slowly. The necessity of locating the factory at the source of power before the introduction of electricity, and the improvements in steam power which allowed the power-plant to be placed at any desired point, led to the adoption of the latter. And after the middle of the last century, steam power soon surpassed the water-power plants. As late as 1870, water-power plants furnished 48 per cent of the motive force, but by 1907 the proportion had fallen to less than 15 per cent of the total motive power in the United States. The growth in water-power plants after 1895 was relatively less than steam power, though the aggregate amount shows a large increase resulting from improvements in the transmission of electricity.¹

With the practical commercial application on a large scale of the alternating current by the Westinghouse Electric Company in 1886, which enabled the operators to transmit electricity for both light and power over a considerable area, a new impetus was given to the water-power industry. In the previous ten years several local plants with small voltage had been installed which utilized the existing power installations, but they were used only for the local factories for which they had been

¹*Report of the Commissioner of Corporations on Water Power Development in the United States*, March 14, 1912) pp. 37-47.

See also *Electrical World*, January 1, 1921, vol. lxxvii for the estimate of the expansion in the industry up to 1925. Estimated output of Central Power stations for 1920, 46,700,000,000 kilowatt hours. Estimated for 1925, 76,250,000,000.

built. As early as 1884, Portland, Oregon, installed the first lighting system run by water-power, which was obtained from the Willamette River thirteen miles distant. This was necessarily very small because of the limitation in voltage that could be carried. With the installation of the alternating current in 1888 at the Portland power plant, which marked the establishment of the first long-distance, high-voltage plant, the voltage capacity was greatly increased. And it is in central stations that hydro-electric power-plants have had their important growth since 1900.

The development prior to 1893 was limited by the lack of what is known as a rotary transformer, which transforms an alternating current into a direct current, and is necessary in transmitting electricity from a large central station. Inventions and improvements have followed since this date in rapid succession, and increased the marketing area of the average power plant to no less than 100,000 square miles. The longest transmission now possible is approximately 250 miles. This distance is not possible, however, with all plants.

According to the survey of the former Bureau of Corporations the developed water-power of the United States is about one-fourth of the minimum and one-seventh of the maximum estimated potential water-power of this country (potential horse-power being based on 75 per cent efficiency). Other estimates made by private authority place the available supply in the United States at 37,000,000 h. p., of which less than 2,000,000 h. p. has been developed. The New England states, according to the Bureau of Corporations, have 36 per cent of their power developed and owned by manufacturers; New York, 30 per cent; and Minnesota and Wisconsin 17 per cent in concerns having more than 1,000 horse-power. Of the estimated potential water-power in the United States a very large amount is centralized in the Western states. Figured on the basis of 75 per cent efficiency, 43 per cent of the estimated minimum power of the country is found in the states of California, Oregon, and Washington. If the states of Montana, Idaho, Wyoming, Colorado, Arizona, and Utah were added to these Pacific Coast states, the amount would be 70 per cent. The states to the north

and east of Pennsylvania have about 8 per cent and the states south of the Ohio and east of the Mississippi, about 12 per cent of the total for the entire country.¹ These three groups contain about 90 per cent of the total minimum potential power now available in the United States. If California, Oregon, Washington, and Idaho, which have developed less than 7 per cent of their capacity, should double their capacity each ten years, it would take forty years before the minimum potential power of these states would be reached. One California engineer has estimated that if 25 per cent of the power in California were developed, it would eliminate the use of all present forms of fuel in that state. "Experience," states a Bureau of Corporations Report, "does not make it probable that the actual development will be as rapid as this." The development, however, of this water-power must have a considerable influence on the future power-plant and upon the prices of power, as the power supply is so much centralized, and the possible distance of the transmission of electricity is increasing.

Character of Business and the Market.—With the advent of long distance electrical transmission devices the water-power industry has become a great commercial enterprise. Where it was formerly necessary that factories desiring to purchase power should be located in the vicinity of a large city it is no longer essential to be in an urban vicinity except for other reasons. On the other hand, if the manufacturer desired to create his own water-power, it was necessary to be in the immediate vicinity of this power supply. Now, raw materials, transportation facilities, labor, and markets may all, or any one of them, be controlling factors in the determination of location. With the still further improvement of devices for the transmission of electricity, water-power will assume large importance in the manufacturing field. Water-power must also ultimately supersede steam-power in many localities for manufacturing purposes, where it is as yet little developed. For the investor of today, this is, however, looking too far in the future, except in very particular instances.

¹Report of the Commissioners of Corporations on Water-power Development in the United States, pp. 37-47.

The growth in the use of electric-power is in itself phenomenal. The increasing demand for the services of public utilities together with the growth in urban population is constantly increasing the demand for electrical current. The use of electrical power by railroads will no doubt eventually be adopted within all large urban boundaries. Other railroads will also, sooner or later, follow the policy of the Chicago Milwaukee and St. Paul Railway in the electrification of its system over the mountains where sufficient power is accessible. Commercial and office buildings are being electrically equipped as well as lighted by electricity. Electrical power is also more than ever used in mines, quarries, and industries where portable power is required. In small industries where intermittent power is needed, the convenience and cheapness of electrical power is now acknowledged. The increasing use of electricity in household devices is also developing a profitable source of income. The installation of electrical devices in homes has come into popularity since the increase in domestic wages in 1916. Once these electrical household utilities are instituted, their use will become permanent.

The cheap operating costs of large hydro-electric plants will often enable them to induce enterprises which have generated their own power in the past, to abandon their equipment for power generation and connect with the transmission wires of the hydro-electric companies. And it is questionable whether a public utility in the vicinity of a large hydro-electric plant which controls all the available power supply, can afford to generate its own power. The use of hydro-electric power by the Northwest public utilities, mines, and lumbering interests and in the Niagara Falls territory is demonstrating the lower cost of power from hydro-electric power plants where water is easily accessible. Where the same interest controls both the power-plant and the industry, a market for a portion of the water-power is assured. If these industries, as is generally the case, are mines, quarries, lumbering, etc., and they furnish the larger part of the income, the hydro-electric plant will suffer severe reaction when these industries are exhausted. Sufficient diversity should be used in the consumption of electrical current, to

safeguard a company against any such contingency. The best insurance against this is a very wide diversity of the market. Some of these companies have fortified themselves still more by obtaining direct control of a large company or group of companies.

Competition.—The important point in the study of both the developed and undeveloped water-power area, as far as the investment in a particular property is concerned, is to ascertain the character of the water supply and the possible development of water-power competition in the same locality. Subsequent irrigation reserves or power-plants, which will utilize all the sources of water supply without violating any of the water-rights of the established power plant, may be developed in the same territory occupied by an existing power-plant. The contracts for the sale of power are usually for short terms. This makes it quite possible for competing companies enjoying any peculiar advantages to bid for these contracts at lower figures. Even if franchises are exclusive, too much dependence must not be placed on their inviolability until they have been tried in the highest court, as new companies may be legalized and competition instituted.

A sufficient number of the contracts for selling power should extend beyond the life of the bonds to insure the fixed charges. On the other hand, where demand for power is growing very rapidly, profits would be curtailed considerably, if the company were rigidly tied up in long-time, low-priced contracts. Companies at their inception have, however, often been forced to accept low prices to their later disadvantage. This, of itself, where other water-power is available might induce competition. Where a territory is developing commercially and industrially, it is of extreme advantage to have short-termed contracts for everything above the amount needed to insure the fixed charges. Where too large an amount of the income is derived from one or two sources and especially where other sources of income are limited, the character of the contract becomes all-important, as competing power-plants might even be able to pay drainage charges and offer more favorable terms. The competition of steam may also become vital to a power-plant, if coal can be

obtained at an advantage in the locality. If industries which use either steam or heat, or both, are located or are likely to be developed in the area of the power-plant, the demand for manufacturing power may be greatly limited. If the power contracts are large, the power company may profitably establish steam auxiliary plants to supply the need and thus avoid possible competition from this source.

Where steam must be introduced as auxiliary power to provide for certain periods of low water supply, the increased costs accrued may enable other power-plants having sufficient water to compete. This will be especially true if there is too wide a variation between the amount of power that can be furnished at the low and high water mark. If this variation is large, the power company is compelled to place too large an investment in auxiliary steamplants, and this will greatly increase the cost of the output. Because of the great efficiency obtained by water-wheels with the utilization of 70 to 80 per cent of the theoretical energy of falling water and the small loss in transmission of current, as against 15 per cent theoretical energy obtained from coal and 21 per cent in gas engines, there is a much greater possibility of increase in efficiency in the last two.¹ While great increase in efficiency has been shown in steam-plants in the last decade, water-power under favorable conditions can be produced at lower costs, provided the original dam and power-plant costs are not too great.² And if, in addition to this, operating costs are low, and a small amount of current capital is needed, the first essentials for a financially strong water company exist.

A brief of the American Institute of Electrical Engineers states:

"Practically all water-powers come to birth or not, on the answer to the question, 'what is the steam-power in the territory costing?' and they can only live when they deliver power at substantially lower cost. At the same cost they remain unborn.

"Besides the cost of power, the relative amount of invest-

¹George Fillmore Swain, *Conservation of Water Storage* (1915), p. 239.

²*Ibid.*

ment is a determining factor. While at present a steam electric plant can be built for \$75 per horse-power, the cost of a hydro-electric plant varies from two to four times that amount. Part of this difference is because the steam-plant can be built near the center of its market, while the power-plant is invariably at a distance.

"With the capital required for a water-power so much greater, the tendency is to build a steam-plant, even if the power it delivers is not as cheap as that of water-power. If it can be shown that water-power can be delivered for say \$25 per horse-power per year, but that steam can be produced for, say, \$27, the water-power plant will not be built and the steam-power will. If, however, the water-power could be delivered for \$24, the difference might turn the tide in favor of the hydro-electric investment. It is this slight variation in the charges against taxes, sinking funds etc.," further states this commission, "which makes these differences loom so large."¹

Water Supply, Storage, and Pondage.—"The possibility," states Walter McCulloch, "of every project for the conservation of water must be determined upon economic, hydrographic, topographic, and geologic data: the economic to determine the necessity for steam-power regulation by the storage of its surplus waters; the hydrographic, the amount of water to be controlled under material conditions and what may be effected by such control; the topographic, to determine the nature and extent of the watershed and the location and availability of reservoir sites for water storage and the geologic to determine the practicability and safety of the sites selected for reservoir dams, embankments and other structures appurtenant thereto. Without such data, no water storage study can be made complete, and the value of the conclusion arrived at would be directly proportional to the accuracy of the data upon which the whole investigation rests."²

The economic necessity of storage of water depends upon the amount of the regular recurrence of the source of water. If the supply is irregular or fluctuates with seasonal changes, two different kinds of storage problems are confronted; the daily

¹A brief prepared by the Public Policy Committee and Advisory Members of the American Institute of Electrical Engineers and presented at the public hearing before the United States National Waterways Commission, Washington, D. C., November 21, 1911.

²Walter McCulloch, *Conservation of Water* (In the Chester S. Lyman Lecture Series, 1912, before the Senior Class of the Sheffield Scientific School, Yale Univ., p. 13).

and the seasonal. Where there is a very wide difference between the seasonal maximum and minimum flow of a stream, pondage or storage is necessary. In this case the value of the water-power will be determined by the cost of construction as compared to the advantages of the utilization of steam and the market for the current. A large supply of water might be secured but the character of the accessible industries which could use the current would not warrant the large expenditures to secure the supply. Proper economies used in the impounding of the water itself also often determine whether the enterprise will be profitable. A correct retention of water during the rainy season may so increase the rates of flow during the dry season that steam auxiliaries are not essential.

The flow of water in a stream is dependent upon the intensity, distribution, and amount per annum of rainfall, the topographical features, character and size of the drainage area, fluctuation of temperature, rapidity of evaporation, character and density of vegetation, and soil characteristics that affect the run-off.¹ The existence of large bodies of water does not necessarily indicate a large supply of water for power flow, as evaporation may take place as fast as the water enters from feeding streams. With so many factors affecting the character of the water supply, the danger in assembling hasty and short duration data is obvious.² Engineers have made examination of proposed power-sites and on the basis of two or three months' rainfall estimated the probable water supply. The result has often spelled failure. Rains vary with the season and from year to year, in a ratio of 20 to 100 and even more. No computation estimating the minimum amount would be safe without data covering a long period. A good illustration of the errors which may be experienced in taking too short records was demonstrated in the case of the Conconully reservoir in Wash-

¹*The Hydrographic Manual of the United States Geological Survey Papers No. 94*; other Water Supply Papers give a complete description of how run-offs are obtained.

²George Fillmore Swain cites an interesting example of a variation between his own experience and the estimates of two other prominent engineers on the flow of the Merrimac at Lawrence, Massachusetts. (G. F. Swain, *Ibid.*, p. 179.)

ington, in which the records for five years indicated a minimum annual supply of 29,000 acre feet, which two years later showed 19,220 and 15,860 acre feet respectively. An average rainfall at the source of a stream at one season of the year may create a very strong flow through an arid or semi-arid region, but at another period the rapid evaporation will largely consume the water supply.

Topography and geological formation may cause such a rapid running off of the water during seasons that the cost of securing the water is increased many fold.¹ On the other hand, if the drainage area has a consistently regular source, it makes possible the operation of plants which, if dependent on summer streams, would often be forced to close. Further to insure an adequate water supply, not only the sources of supply but also a large drainage area should be controlled. Past records of supply may be good, but what may happen to this source of supply without a very large control of sources is another question. Denuding our mountains and hills of their forests has dried up certain former sources of water supply. Mountain snows, while they furnish an excellent supply of water, are not always dependable for a continuous supply as has been experienced in the flow of Rocky Mountain streams. Where the area of supply is small, there is greater danger of depletion, especially if a competing concern can divert water for other purposes without violating riparian rights. To insure a company's water supply against these possible exigencies and thus from exhaustion, demands the control of a very large drainage area.

After a survey of the sources of water assures a sufficient supply, the possibilities and cost of constructing storage facilities must be considered. If a natural lake or basin exists for the making of a lake-reservoir, construction costs may be small, but in some cases the work of securing a safe discharge of the flood waters of the stream in natural basins is expensive in proportion to the capacity obtained. Also, these natural

¹Daniel W. Mead, *Water-power Engineering* (1908), pp. 79-195. Also see Eric A. Lof, David R. Rushmore, *Hydro-Electric Stations* (1917), chaps. i and ii.

basins or dried up lake beds, may allow enormous wastes in seepage and subterranean outlets, and may therefore be unserviceable. The Deer Fleet Reservoir near Boise, Idaho, in 1909 was filled with about 60,000 acre feet of water when completed, the greater part of which was lost by seepage. It is also necessary that the rocks or soils be able to retain the foundation of dam construction. The necessity of going to any great depth to obtain a solid foundation for the reservoir walls rapidly forces up the cost of construction. With the enormous initial outlays which must be made in securing a sufficient and uninterrupted water supply, it is readily seen how important become the conditions affecting this supply and the costs of retaining it.¹

When water supply and construction costs have been secured, are they warranted on the basis of the existing or potential market for electric current? As this has been referred to under a previous topic, the reader is here only again reminded of its importance.

Riparian Rights.—The law of riparian rights is still in a formative state and considerable variation exists between the statutes of the various states. Courts, also, have differed considerably in the interpretation of these statutes. Consciously or unconsciously, the courts have been influenced by the location of the water supply, *i. e.*, whether in a humid or arid region. For example, the western part of the state of Washington, which is humid, has had several decisions varying from those of the arid eastern section of the state. The same originally was true of the decisions of the California Courts. The doctrine of "appropriation of use" which has been widely adopted by the western arid states is in direct opposition to the statutes and court decisions of the humid states of the East, which hold to the old English practice that each landed proprietor must permit the flow of a stream bordering his land to continue unabated in either quality or quantity.

There have been, consequently, innumerable controversies

¹J. T. Johnson has given a very satisfactory guide for the collection and compiling of reports and field data for electric power companies in the *Annual Report for 1914 of the Water-power Department* (Canada).

and court decisions have frequently conflicted. This situation has not only involved a number of projects in large legal expenses, but has placed their securities in a doubtful, and not infrequently, a precarious position. While the laws are rapidly becoming more uniform and established by court decisions, the importance of water-rights enters to a large measure, in an analysis of the security, not only of hydro-electric but also of water company¹ and irrigation bonds.² A brief statement, consequently, of riparian rights in the arid states might be of value.

There are in existence now in the western states, three distinct doctrines of riparian rights. A very small acreage in nearly all of the states uses water under the old common law doctrine. In the states created out of the acquisition from Mexico, another small acreage uses water under the old Spanish and Mexican grants. The great majority of irrigated farms are being watered under the "appropriation and use" of riparian rights; *i. e.*, all water may be put to any beneficial use under the regulation of the state.

The manner of the acquisition of water rights under these statutes is extremely variable. In Arizona, California, Kansas, Montana and Washington, the only requirement is the posting of a notice at the point of diversion stating the amount of water to be taken. The chief difficulty here arises in valuing the record, as the only records available are those of the individual counties and these are incomplete. If prior appropriations experience a shortage of water, later appropriations must take what is left. This brings the matter into the courts. The suit is usually a long drawn-out process, as most states now require that the suit include all parties affected by the same water supply. One case has been reported to have included nearly four thousand individuals.

All states except Colorado³ require that the appropriator obtain a permit from the state. This is commonly called the Wyoming system,⁴ which has been largely copied by the other

¹Chap. xxiii.

²Chap. xxxi.

³Colorado was the first state to adopt laws regulating irrigation.

⁴Law drafted by Dr. Elwood Mead.

states. Though Colorado does not require a permit, it does require that construction shall begin within a stated period. Nebraska, Nevada, Texas and Wyoming are the only states having administration boards to determine specifically what these rights are. In the other states, if a right is disputed, it must be adjusted by the courts. This has resulted in many complications, and these difficulties must continue to exist as long as it is so easy to destroy priority. It is estimated that more than 50 per cent of the water rights in the United States, though considered valid, have not been adjudicated. "On the other hand," states Mr. Samuel Fortier, "the fact that the right has been adjudicated or defined is not an absolute guarantee of the extent or value of the right, as the appropriator may be entitled only in time of flood, only when the flow is considerably above the low summer stage, or only at certain periods of the year; the right may have been adjudicated as against only part of the other claims from the same source of supply."¹

*Public Regulation of Water-Power.*²—Until very recent years, all water-power regulation has been based on private rights and public safety, and not on specific statutes established on economic grounds. But the development of water-power has led to some important legislation affecting its regulation. The enabling acts and many state constitutions of the Mississippi Valley and Pacific Coast states make all navigable streams public highways, consequently public³ property. In many of the interior states, however, which have adopted the distinction of the English law, non-navigable streams above tide are considered as private property and belong to the riparian owner. The Atlantic Seaboard states have also followed the English interpretation with important modifications.⁴

¹Samuel Fortier, *Use of Water in Irrigation* (1916), p. 18.

²This topic should be closely studied with the topic on Riparian Rights.

³The two following references will give the reader a good view of this problem: Rome G. Brown, *Limitations of Federal Control of Water-power*; John A. Fairlie, *Public Regulation of Water-power in the United States and Europe*, *Michigan Law Review*, vol. ix, No. 6 (Apr., 1911).

⁴The law of prior appropriation called the Colorado doctrine, is in force in Arizona, Colorado, Idaho, New Mexico, Nevada, Utah, and Wyoming.

The difficulty with water-power companies has arisen over the confusion of what constitutes a navigable stream. For example, the Economy Light and Power Company of Illinois, which was prevented from even starting a newly constructed plant, claimed title to the river bed of the Des Plaines River as a riparian owner, and by grants given by the Canal Commission. The company's claims were sustained by the Supreme Court of the state¹ but the United States Federal Supreme Court in 1921 rendered a decision against the company. While riparian owners, as power-companies, have rights even in navigable streams, they are limited by Federal and state laws purporting to represent public interests. The United States Supreme Court in several important decisions has very definitely stated that, where a river is wholly within the boundaries of a state, that state has complete plenary powers² and "what it has it may keep and give no reason for its will." The state authority, together with the control exercised by the United States over navigable streams,³ has, unless the titles of power-rights are quite definitely established before the installation of the plant, caused large losses in many long drawn-out litigations.

Where large sums are put in fixed property accounts, the proposed ten-year franchise for power-rights is too precarious for any investor to consider, unless there is a very definite clause in the franchise stating that a renewal will be permitted or the company will be compensated for the full value of the plant. If the franchise can be renewed, the possibility of a change in the taxation and a lowering of the rates of the company should be discounted by the investor in order that the total average income from the investment may be calculated. While conservation propaganda should be carried forward, many of the unscientific schemes proposed for regulating water-power rights would bring untold injury to the power-plants working under the burden of the larger outlays. Inelastic regulation must make the company with a \$700 outlay per horse-

¹People vs. Economy Light and Power Company, 241 Ill. 290.

²North Shore Driving Col. vs. Nieoman Boom, 212 U. S. 406, 1909.

³Act of Congress, June 21, 1906.

power bear an unwarranted financial burden in comparison with the company on whom the same obligation is placed but whose cost is only \$75 per horse-power. Fortunately, the greater part of the largest companies come entirely under the control of the Federal Government; consequently, they are not subject to the jurisdiction of state commissions. This also gives them greater rights in franchise privileges.

Construction Costs.—As with all public utility construction costs, no standard can be fixed. Costs with equally successful records have varied from less than \$50 to \$1,000 per horse-power. For illustration, the Chicago Drainage Canal, Lockport, was built at a cost of \$252.80 per horse-power,¹ the plant at Columbus, Georgia, at \$50,² and that at Winnipeg, Manitoba, at \$156. The Ontario Hydro-Electric Power Commission showed estimates for seventeen different power-plants in Ontario on the same stream with a variation from \$61 to \$203 per horse-power. As a rule, other conditions being equal, the larger plants are built at a smaller unit cost than smaller plants. Geographical and climatic conditions affecting the source of the water supply vary greatly. Obstacles to the construction of a solid foundation for dams—such as the protection of the location of the power-house from floods, ice, destructive shalings, and slides which require expensive excavation—vary with every project and are responsible for the differences in dam and power-house construction costs. The erection of transmission wires and transforming stations, if the power-plant is greatly removed from the market, may also become costly items in construction costs. Even where the dam (and) power-house costs are reasonably low, costly long distance transmission wires may more than offset the advantages of the former.

With these difficult problems in construction involved, the care necessary in the examination of construction costs of new projects needs no emphasis. The surest safeguard is an experienced and reputable firm of engineers. Most of the serious losses from faulty construction, in the past, have been the result

¹*Electrical World*, vol. xlvii (1906), p. 398.

²*Electrical World and Engineer*, vol. xliii (1904), p. 165.

of the errors of experienced engineers with a lack of professional conservatism. Cognizance must then certainly first be taken of the character of the engineering firm employed, even if the engineering reports are carefully scrutinized. The most positive evidence obtainable of the accuracy of the engineering report, is the record of the correctness of the firm's previous judgments. Faulty judgment upon the initial outlay necessary for installation has often been sufficient to cause the failure of a project. When the fund raised for the construction of a new plant has been exhausted without the completion of the plant, it is extremely difficult to obtain additional funds. The author has in mind a hydro-electric plant the construction cost of which the engineer had largely underestimated because of the unforeseen difficulty in the construction of the dam on account of peculiar geological formations. The practice followed in some hydro-electric bond issues has been to include in the mortgage a limitation clause that will prevent the issue of more bonds. If an unforeseen condition should arise or the estimates prove in error, the difficulty in securing additional funds to complete the project would be greatly increased, though, as stated later, such a limitation clause ordinarily strengthens the security of these bonds.

Over-estimating the future has been a common fault with hydro-electric projects, as with irrigation companies, both of which are compelled to build for the future more largely than any other public utility. It is quite essential, that where the permanent outlay is so large, construction must anticipate the future demand for several years to come, but building for a too distant future incurs a fixed charge for the present that is too large to carry on the basis of existing earnings. If a slump in industries also takes place, as from 1911 to 1915, the burden upon these companies will be greatly aggravated. There is little question but that several hydro-electric power companies would have passed into receivership had not the European war occurred at the time it did. The tremendous demand which sprang up, almost over night, from our Allies for all forms of mineral products created a capacity demand for power. As a general rule past experience has demonstrated

the advisability of discounting the estimated prospects of a new enterprise not yet constructed.

In determining the amount of water supply, one thing already brought to the attention of the reader is the necessity of constructing auxiliary steam-power where the water supply is not sufficient or is intermittent. If this is necessary, it means a very considerable increase in the amount of construction, which increases the costs of construction and also of operation. Again in new enterprises, if the estimates show the immediate necessity or even the eventual need of constructing auxiliary power-plants, there should be a more careful checking of any reports offered upon the properties than where the power is to be furnished entirely by water. If steam is eventually to furnish a large part of the power, the location of the plant may also place it in serious competition, as already suggested, with steam-plants more favorably located near the market.

*Earnings and Operation Costs.*¹—For the technical measurements and analysis of earnings and costs the reader is referred to the discussion of these topics under Electric Light and Power Bonds. As with the electric light companies, the continuation of earnings of hydro-electric companies depends upon the diversity of the industries within the power area. In securing the use of electricity by existing manufactures and inducing new industries to locate within its area, the hydro-electric company has the same problem of obtaining a diversification for its current and leveling down its peak load, as has the electric light companies.² In addition to the problem of the daily load there is also the seasonal demand, which, like the daily demand, is usually greater in the winter months owing to the shorter hours of sunlight from November to April. Obviously, if the load factor in one company is 60 per cent as compared to 30 per cent in another, the gross income, other things equal, should be correspondingly greater in the former. And it is always with the increase of this load factor that the advantages of the hydro-electric power plants are increased over steam-

¹For technical units of measurement see previous chapters on Public Utilities.

²See chap. xxi.

power. This is because of the large ratio of fixed investment to operating costs. To secure the largest load, however, it is necessary that the uses of current should be distributed throughout the twenty-four hours. This distribution is at least greatly encouraged by giving lower rates.

Where both size and diversity in the market for current can be secured, the hydro-electric power-company has a very large advantage in its low operating ratio. The operating ratio usually has an average range from 20 to 40 per cent. And with a certainty of steadiness of income, the operating ratio is subject to little fluctuation, as material and labor costs do not affect hydro-electric power companies to the same extent as they do other public utilities. With conditions assured, hydro-electric companies are enabled to carry safely a much larger fixed charge than other companies.

Market and Bond Characteristics.—Water-power bonds are rapidly gaining a wider market, though they are still narrowly held. The larger development of this industry has been so recent that the public has not become familiar with hydro-electric securities. While the market in these securities will broaden, it will never become very active or speculative. The industry is of such a character that, if conservative and reliable engineers have constructed the plant and made the estimates, fairly accurate valuations can be placed upon the properties, though, as already pointed out errors may be made during the period of construction. Errors are also more likely to occur in the estimates of future growth than in the immediate earning power. Water-power projects, however, after they are once established and seasoned, are without question, a very desirable form of security for the conservative investor.

To insure this stability, it is assumed that a sufficient number of contracts are on hand to cover the life of the bonds. This should be demanded in a new enterprise, though in a rapidly growing community and with the increasing price of coal, renewal privileges would be advantageous.

Because of the narrow market, these bonds, except those of a few of the very largest companies, are not always readily convertible, especially in a strained market. But where well

selected, they do not usually suffer severe relapses in market price. While these bonds would not meet the full requirements of a business surplus, they do meet all the requirements of a trust estate where convertibility is not demanded.

Power-plant bonds are now practically all protected by clauses limiting any additional issues to a given percentage of actually installed extensions or additions. This sometimes, though it prevents any overburden of fixed obligation, is elastic enough to meet the demands for protection, at the same time that it increases the strength of the outstanding bonds.

These bonds are so well distributed among the different classes of clients that no one class can be said to represent a typical distributing market. However, several of the offerings of the last ten years with common stock bonuses which have been sold at a discount, must be considered as speculations rather than as investments.

The majority of the hydro-electric bonds that have come on to the market have been for new enterprises. This has meant that the project is untried and the risks have not all been tested. The dependence of the project, first, on the reliability of the engineers' estimates, and second, on the available market for the power supply, necessitates, as do all untried enterprises a very close examination. When the interests that control the water supply also control the industry, these risks are materially lessened or do not exist. In an established power-plant, the possible extensions of the market, alone, need careful scrutiny.

CHAPTER XXIII

PRIVATE WATER COMPANY BONDS

Water-works companies are the oldest of the public utilities. As early as 1592, Peter Morrys, a Dutch engineer, secured a lease on one of the arches of the London Bridge and constructed a system for distributing water through wooden pipes. This was known as the Old London Bridge Company.

As a relatively greater proportion of the water-works plants in the large cities are controlled by the municipalities, the total capitalization of municipally owned plants largely exceeds the capitalization of privately owned corporations. Only six cities of over 100,000 population in the United States now have privately owned plants. And it is an acknowledged fact that the movement toward municipal ownership is increasing. Even in quarters where municipal ownership of other utilities has been bitterly fought, there has been little public opposition to the municipalization of water-works plants, though the proprietors have never given them up without a strong fight. As a rule conservatively established and well managed water-works corporations have been very profitable. They are simple to operate and are easy to maintain when well constructed, and of all the public utilities are the easiest to manage where cordial public relationships have been established.

Unfortunately, many private water-companies have been the easy butt of unprincipled political bosses, though the fraudulent practice of some of the companies in the early years of water-plant development gave their share of encouragement to the opposition of privately owned plants. And out of these early experiences developed the permanent and large tendency toward municipal control. Notwithstanding this tendency, however, probably more than half a billion in securities of private water-plants is outstanding, though they are least popular as a class of public utility securities.

Territory and Population.—The character and topography of the territory in which a water-system is located determine whether the gravity system may be used or whether continuous pumping is necessary. The latter system is more expensive to build and to maintain. The character of the topography and soil also makes a vast difference in the expense of installation and maintenance of water-mains and aqueducts, as well as a difference in the expense of obtaining the water supply. As with all public utilities, however, these physical determinants must be studied in relation to both the number and distribution of population. A widely distributed population, especially where pumping is required, will materially increase the cost of operation as well as of construction. A number of instances are to be found where a city much smaller in population but more closely concentrated is very much more profitable than a larger city with a widely distributed population.

A considerable variation also often exists in water consumption. A wealthy suburb like Evanston, Illinois, for example, uses a very much larger amount of water than the majority of cities in the United States of a similar size. A difference will also be found between cities using meters and cities which give unlimited use of water. As metering acts as a check on the wasteful use of water, it automatically results in a saving to the pumping station. Similar variations will also occur in different types of manufacturing towns.

Supply¹ and Quality of Water.—The quantity of water is the first requisite. If the water supply does not measure up to the proper standard of purity, it can be filtered, though extensive filtration plants add materially to the costs. But there is no substitute if the quantity of water needed is not obtainable. With every water-plant, the questions to be raised are: Has the present water supply always been constant? If the rainfall is irregular, are the reservoir facilities of sufficient capacity to tide the demand through a drought? Is the water supply sufficient to meet the increasing demand of a growing

¹The reader should review the topics Water Supply, Storage and Pondage, Riparian and Public Regulation of Water-power; chap. xxii—Hydro-Electric Power Securities.

population, and for how long? Are there any sources of water supply not yet tapped that will be available and what will be the cost of securing the supply? If water supplies are available, what difficulties of water rights may arise? Can the gravity system used be employed, especially in bringing water from greater distances? For an answer to these questions we are dependent on the engineer.

A water-works company will usually have at least one of five sources from which it may obtain its water supply; namely, lakes, rivers, ponds, springs, and wells. The engineering problems, involving the water supply and the difficulty of procuring it from one or more of these sources and the necessity or not of filtration, are too complex to allow of a generalized statement. The engineering problems involving the cost of installation and operation, which are the phases of the problem the investor is interested in, must be analyzed in each individual case.

The paramount importance of the quantity and quality of water supply is illustrated by the efforts of New York City, through an expenditure of \$162,000,000, to obtain a sufficient supply which would be outside of the dangers of pollution. Los Angeles has also spent an enormous sum on an aqueduct which brings water 230 miles from the mountains. San Francisco obtained consent of the Federal government to construct a dam at Hetch Hetchy in order to obtain its supply from the Sierra Nevada mountains, conveying the water 142 miles. New Orleans made an expenditure of \$24,000,000. A number of water companies in the older and larger cities have suffered heavy financial losses, as the cities' growth has endangered the purity of their water supply and forced them to seek new sources of supply. The vital importance of the purity of the water supply must never be overlooked, for there is nothing that will so completely arouse a community to action, and with justice, as to be led to believe that the safeguarding of the purity of the water has been neglected. Companies which have followed the policy of overlooking this obligation to the community have eventually suffered, and in some cases have been forced to surrender their property at a sacrifice.

While conveyance of water from a great distance increases

cost of construction, it usually guarantees pure water without the necessity of filtration. Longer transportation also generally gives an even greater benefit in the use of the gravity systems. In a greater part of the Ohio and Mississippi Valleys the gravity systems are impossible and all water must be pumped.

Filtration is also often needed in this area; and since filtration adds very greatly to the cost of operation in the majority of cases, water plants so affected are less profitable. With cities and towns closely adjacent to mountains or high elevations having a water supply, even the initial costs of gravity systems may be nominal.

Large variables exist in the cost of constructing and maintaining supply reservoirs. The topography may be of such character that the building of a reservoir is difficult and costly. In other instances an ideal situation may exist together with all material for construction at hand. Again, there may be soil conditions, and difficulties in drainage that make it hard to protect against the pollution of the water.

Statutory legislation and court decisions affecting water rights vary to such an extent among the various states that proper legislation protecting the present and future water supply should be ~~be~~ assured.¹ Where a town is securing its water supply from a river it is quite possible under some existing statutes for the water to be diverted for another purpose farther up the stream. Because of the vital necessity of water to the existence of human beings, however, there has undoubtedly been less difficulty in securing protective legislation and favorable judicial decisions for town and city water supply than for the irrigation and water-power projects. Existing legislation should also leave no doubt as to the possibility of procuring increased water rights when necessary at not too great a cost. The profits of a very prosperous water plant might all be requisitioned for several years as the result of difficulty in obtaining additional water rights.

¹See ~~topic~~ ^{Section} on Riparian Rights in chap. xxii, Hydro-Electric Securities.

Plant and Equipment.—To secure an accurate estimate of the property and equipment, it is again absolutely necessary to have an engineer's detailed report. Without it no intelligent comparison can be made between the capitalization and property values. A well constructed building and water mains of good cast iron throughout the system with a capacity to take care of a legitimate expansion constitute as near a permanent security, outside of land itself, as it is possible to find in the field of investments. But it must not be forgotten that fixity does not always beget profits. If pumping is required, the cost of equipment in machinery and boilers is materially increased, though this is only a small part of the total construction. Where the construction has been well done, there is little depreciation, for deterioration of this type of building and water mains is very slow. If construction has not been such as to allow for the needs of a growing city, serious losses are apt to result from obsolescence rather than from the actual wearing out of buildings and equipment. But this is not a very difficult matter to ascertain. The danger of the use of poor material in water-mains which can be covered with paint and then buried is less prevalent today than it was twenty-five to forty years ago, though an occasional example of fraud now and then comes to light.

Depreciation.—Allowance for depreciation, even where it is as slow as in a water plant, has become a recognized principle by the courts. Though the exact rate and method of procedure in determining what it shall be is no more agreed upon with water companies than with other public utilities, the final results are for all practical purposes the same.¹ The amount of machinery, etc., for pumping must necessarily account for a considerable variation in machinery investments. With a very rapid growth in population obsolescence may become an even greater item and require a corresponding increase in earnings.

¹*Ibid.*; Des Moines Water Company vs. City of Des Moines, 192 Fed. 193, Sept. 16, 1911. Knoxville vs. Knoxville Water Company, 212 U. S. 1, 14, 29. Supreme Court 148, 152, 53 L. Ed. 371.

*Capitalization and Earnings.*¹—The majority of the conservatively managed and financed private water companies show a capitalization per capita of population served, of between thirty-five and forty-five dollars. Ordinarily cities and towns below 50,000 population should not have a capitalization of over forty dollars per capita if the securities of the water-company serving these municipalities are to be classed as investments. Cities above 50,000 can safely show an increasing per capita outlay, though the large majority of cities above 50,000 have a much lower capitalization owing to the large population per mile of main. Over-capitalization is not common, though a few of the old mismanaged companies still carry the burden of their over-capitalization of earlier days.

With the exception of hydro-electric power companies, water-companies can carry a much larger proportion of bonds to stocks than any other type of public utility. The proportion which is carried by some conservatively managed and capitalized companies would spell disaster to other types of public utilities. Examples are not infrequent of a funded debt of from two to four times the amount of capital stock outstanding,

INCOME ACCOUNT (Wisconsin Railroad Commission)

I. Operating Revenues	Contingencies
Earnings from Commercial Sales	Taxes
Earnings from Industrail Sales	Total Operating Expense
Earnings from Municipal Hydrant Rentals	Total Net Operating Revenue
Earnings from Sales for Street Sprinkling	Non-Operating Revenue
Earnings from Sales to Municipal Departments	Total Gross Revenue
Miscellaneous Earnings from Operation	Total Net Revenue
Total Operating Revenue	
II. Operating Expense	III. Deduction from Gross Income
Pumping	Interest on Funded Debt
Distribution	Interest on Real Estate Mortgages
Commercial	Interest on Floating Debt
General	Sinking Funds
Undistributed	Amortization Reserves
Total	Miscellaneous Deductions
Depreciation	Total
	Disposition of Net Income
	Preferred Stock Dividend
	Common Stock Dividend
	Other Payments
	Surplus for year

(For technical unit measurements, see this topic in other public utility chapters.)

and a few companies go even higher than this ratio. Though the total capitalization rarely exceeds the value of the physical plant, several instances exist of the bonds outstanding equaling the full physical value. In these companies the capital stock is usually quite small, and thus a reasonable dividend is allowed to the stockholders. From the stockholders' point of view this has a decided advantage in that it enables them, with a small amount of capital, to control a very large amount of credit.

Water-plants have the advantage of neither having to seek custom nor having it decrease. There is no practical substitution for the water company after the town has passed the stage of individual wells. Neither is there any risk of payments involved, for the water companies have, happily for themselves, followed the precedent of the municipalities in requiring payments quarterly or semi-annually, and if payment is not made, the right to shut water off is exercised. Consequently, the fluctuating risk to which other corporations are subjected is scarcely known to water companies. Where the future expansions have been judiciously provided for and the income determined, there is a minimum risk in forcing up the interest charge to this fixed income after a reasonable margin of safety is provided. As a matter of fact, a study of the fixed income of water companies is the best basis for determining the burden of the bonded debt. Where, however, a large ratio of funded debt leaves a very low return for the capital stock, the interest charge does not have a sufficient margin of safety. This situation signifies too large a funded debt and probably over-capitalization.

The time of greatest danger for water-works companies is during the period of their development, or when large expansions of old companies are undertaken. Construction is a very slow process, and delays frequently occur that materially increase costs.¹ The temptation during this construction period is

¹Nevada and Nebraska commissions in earlier rulings refused to make any allowances for the development period. The Wisconsin Commission has made allowances for these losses for the development period and this is the only equitable thing to do. The latter Commission, however, does retain power to discount any extravagant practices. (Wisconsin R. R. Com. vol. iii, p. 624 and vol. iv, p. 585.)

to reduce rates in order to secure customers, who otherwise would not avail themselves of the use of the system. This will eventually mean a decided reduction in net profits, for the whole community must sooner or later be given the same rates, as the public can only be treated as a group. Furthermore, as water-works plants are, not only the most costly to install, but also slowest of the public utilities to develop, the long period during which the capital must be tied up in new companies before it yields any very lucrative return must be taken into account by the purchaser of the security.¹

The peak load factor exists in water systems, though when high enough stand-pipes can be erected; and especially where it is possible to erect them on high elevations, it is rarely the serious problem it is with electric lighting plants. Nevertheless, even with stand-pipe facilities, the fires in the power house must be kept going to allow of a quick response to the need for extra water for fires. And a very considerable addition to the operating expense is incurred in keeping the plant in continual readiness for these emergencies. Normally, fire protection costs increase in ratio to total cost as the city decreases in size. While the amount of water actually used for fire protection is less than 3 per cent in the average plant, the necessity of being prepared for an extraordinary demand materially increases, as stated above, the operating expense. As the peak load requirements in equipment and pumping for ordinary domestic service are but a small part of the fire protection requirements, the conditions affecting the demands of the latter require the closer analysis.²

Franchise.—The continued tendency toward municipal ownership of water plants should warn every private company to

¹The operating results at the pumping-station are dependent according to J. A. Chester on the following: 1. quality of coal; 2. efficiency of boilers; 3. efficiency of steam lines; 4. station's capacity; 5. head against which water is delivered; 6. load factor; 7. adaptability of machinery; 8. compactness of station; 9. low vacuum in condensing units, and 10. care in operation and many other minor elements.

²Mr. Allen Dazen, *Meter Rates for Water Works* (1918), pp. 164-168. Mr. Halford Erickson (In Proc. American Water Works Association, 1913, p. 56) states that for a typical water works plant the capacity expense would amount to 38%; the consumers' expense to 18%, and the output expense to 44% of the total operating expense.

incorporate the provisions affecting confiscation of property so as to enable the company fully to discount its effects. It is hardly safe to assume that a company even with a long termed franchise is immune from the possibility of a forced surrender of its charter rights.¹ While ultimately an advantage will probably be enjoyed, a temporary relapse of security prices is likely to take place.

If the charter is not endangered by confiscation, the rates, if high, will sooner or later be adjusted by a state commission unless there is some very positive and exceptional reason for the maintenance of the existing rate. Regardless of the sweeping powers that an old franchise may possess, it is well to discount the possible lowering of high rates where they exist, and fix the value of the utility on the basis of what the rate may be made for future investment purposes. In the Kenebec Water District case, for illustration, the Supreme Court of Maine stated clearly the attitude of the courts on the company's right to fix rates under its franchise:

"The Maine water company is a quasi-public or public service, corporation, and is entitled to charge reasonable rates for its services, and no more.

"The basis of all calculation as to reasonableness of rates to be charged by a public service corporation is the fair value of the property used by it for the convenience of the public.

"At the same time, the public has the right to demand that the rates shall be no higher than the services are worth to them, not in the aggregate, but as individuals."

On the other hand, there is far less danger of usurpation where an equitable rate of return exists² than there was twenty years ago; nevertheless, these conditions should be very completely stated in the charter. If rates are reasonable, there is certainly more likelihood of a franchise renewal.

Among the items which are peculiar to a water plant franchise and should be covered in minute detail are: (1) The mini-

¹An evidence of this is the early experience of the Denver Water Works Company.

²Kenebec Water District vs. City of Waterville, 97 Me. 185, Att. 6, Supreme Court, Me., 1902.

³Spring Valley Water Works vs. San Francisco, 192 Fed. 137, (1911).

num reservoir water supply to be required; (2) the methods by which the water will be tested; (3) the details and prices of the contract for furnishing the city water; (4) the character of specifications for all constructions; (5) the specification as to the character of material to be used; (6) the conditions under which extensions shall be made; (7) the tests required; (8) the terms on which the franchise shall be surrendered to the city which safeguard the security holders; and (9) the duration of the franchise.

If all consideration affecting both the company and the public are fully stated, there is no risk as to changes affecting the company's interests. If the concessions to both parties are not fully stated in the franchise, they must ultimately be conceded, and when they are once secured on this basis, risks are stabilized. To those, of course, desirous of assuming a speculative risk, such carefully drawn concessions would not appeal, but the investor's endeavor is always to eliminate the risk and strengthen the security.

Bond Market and Characteristics.—Well selected water company bonds are undoubtedly, as a class, highly desirable public utility securities. The market except for the larger and some of the better known issues is rather narrow. Rarely, however, have water company bonds gone begging, for they have practically always been quickly absorbed by the local home market of the company. These bonds, though possessing an extremely slow convertibility in comparison with some other bonds, will usually be taken by the local market. Even strained markets have experienced considerable eagerness in the purchase of sound water company offerings. Except for issues of new plants or for extensions, relatively few of these bonds appear in the market.

Practically all water company issues now provide for either the sinking fund or serial payments. While either the sinking fund or serial payment clauses are found in the indentures of all new issues, they are seldom found in the old long outstanding issues. But in well-tested water companies the omission of either one of these requirements is not subject to the same criticism as it would be in other classes of public utilities. In any case they are an advantage to an issue.

CHAPTER XXIV

TELEPHONE AND TELEGRAPH SECURITIES

The government ownership of telephone and telegraph lines in Europe has been influential in stimulating considerable agitation in this country for government ownership of these public utilities.¹ Next in prominence to the agitation for municipal ownership of water-works has been the advocacy for Federal ownership of telegraph and telephone lines. With the smaller units and the simple character of the industry, the management of water-works has been a relatively easy matter compared to the control of companies of national scope. Advocates of government control and operation of these larger companies too frequently ignore these two factors so fundamental to any consideration of these problems.

If government control is ever successfully established, the government will first have to obtain a wider understanding of and ability to manage such highly developed and complex organizations as the American Telephone and Telegraph, than it now possesses. It is questionable, then, whether government operation can be carried out and the high character of past service be continued? The remarkable growth and the superiority of service rendered by the two largest relayers of messages in this country compared to those of Europe raise very serious objections against any attempt at government control.

In Denmark, where most of the telephones are privately owned, there are two and one-half times as many telephones as in Great Britain, six times as many as in France, and twice as many as in Belgium where the exchanges are controlled and

¹For technical forms of analysis see previous topic under the various chapters of public utilities and the form of the *A. T. & T. Co.*, given in Appendix D.

operated by the government. Paris, France, which is more than twice as large as Boston, Massachusetts, has only one-half as many telephones. Liverpool, England, which is three times the size of Los Angeles, California, has only one-third as many. All Russia has fewer than Philadelphia, Pennsylvania, and Toledo, Ohio, more than Spain. And this is the experience of every other country whose systems are exclusively controlled by the government.

Notwithstanding that the original telephone patents were operated in 1878, and every opportunity has existed to develop several large competing companies, a large part of the business continues to be dominated by the Bell Telephone System. Approximately 80 per cent of the wire, and nearly 62.5 per cent of the telephones are under the control of these interests,¹ and a large number of the independents use their lines for toll service. If the latter companies are included, the telephones using the Bell System equal 89.5 per cent of all telephones in the country.² With the termination of the original patents there was a very rapid growth of local and rural mutual systems. The last census enumerated the total number of telephone companies at 52,234. Many of these have only a few miles of wire connecting a small group of farmers. Of this number only 145 companies are controlled by the Bell system; but the Bell organization controls 86 per cent of the income from all telephone companies of the country so that the greater part of the independent systems have no interest for the average investor. In fact many of the rural telephones are installed for convenience and not for commercial profit, even barbed wire fences being utilized as transmission wires in a few cases. But even with the almost doubling of independent rural systems from 1901 to 1917, the fact that stands out most significantly in the whole enumeration is that consolidations still continue among the larger systems where commercial demands exist.

The particular object of these comparisons has not been to recommend Bell system securities but to show how limited are

¹*United States Bureau of Census, Telephones (1917) (Printed 1920).*

²This includes companies having an income over \$5,000 per annum.

the telephone securities which can be classed as investments. And the advantages of the larger units must always be stressed as peculiarly valuable in telephone securities. If only a local market is desired, a number of the large corporation securities of the independent group are desirable holdings; but if a national market is preferred, the purchaser must confine himself to the Bell group.

Telegraph companies are even fewer in number than telephone companies. Until very recently telegraph companies have had an absolute monopoly on the relaying of long distance messages. This, together with the economies and efficiency in service which can be accomplished by sending messages over the wires, have forced the consolidation of telegraph companies. The advantages of these consolidations are discussed in the following topic.

The commercial land telegraph companies in the United States in the last census numbered twenty-one; the ocean cable companies having stations in the United States, seven. All but a very small percentage of the telegraph wires and ocean cables are in the control of the American Telephone and Telegraph, and the Mackay Companies, and a study of telegraph securities for investment is confined to these two companies. The wireless companies are still in such an uncertain financial state, that they must be classed as purely speculative and are not considered in this discussion.

The land telegraph systems in the United States are of much less importance financially than telephone companies, having a total in assets of about one-sixth of those of telephone companies and about one-seventeenth of the net income.

Advantages of Large Organization.—Efficient telephone service should insure communication between all telephone users in the same community. The only way in which this can be done is by the entire elimination of competition. In order to render this kind of service, all service telephone lines must be under the control of one organization. Any other form of organization than a monopoly, then, is a disadvantage to the community if equitable rates are provided by the telephone company to its subscribers. The next question, then, normally

raised is whether the control shall be under a regulated private company or municipal ownership. The weight of evidence, if the character of the service means anything, is overwhelmingly in favor of the former.

In no other public utility have the important companies been so effectively centralized as in the telephone corporations. While very large credit must be given to the master brains who have guided these great consolidations, the character of the industry has been such as to force it ultimately to yield to the large unit organization. This has been evidenced by the experience of every commercial and industrial community of importance in the country, and even in the smaller communities, where the inconvenience of competing systems is still borne, the constant pressure is for consolidation. Where duplication does exist, the poor service, which generally attends it, is sometimes somewhat mitigated by intercommunication service lines and the regulations governing trunk-line service. But this condition is likely to result in a lessening of the efficiency of the local service or in a duplication of costs to the community.

The cheapness and the simplicity of managing small units have, however, brought into existence hundreds of companies in small towns and rural communities. A considerable number of rural lines which have had no other demand upon them than the demands of purely rural communication, have successfully continued existence as more or less communistic organizations. But where these systems have increased in size, the demands for better service and organizations have forced centralization and consolidation.

Because of the great advantage of centralization, it is argued by many that control of all telephones and telegraphs should be taken over by the Federal government, and Federal buildings and the postal organization be utilized. A discussion of this subject does not come within the province of this book, but bondholders need have little concern for their holdings should the properties ever be confiscated by the government. While even greater concentration is to be desired than exists now, the experience of municipally controlled telephone properties in Europe, when contrasted with the telephone service in

this country, does not convince one of the desirability of government ownership.

For the investor, therefore, large telephone organizations offer the greatest security. Exceptions and qualifications enter into the selection of any standard security, however, and a great number of small telephone corporations have been highly successful.

The dependence of the telegraph on business and its more limited use, makes a larger unit even more imperative than with the telephone. In fact only a very large system could ever be considered as possessing all the safeguards required by an investor. As the greater part of the revenue is wholly dependent on financial, manufacturing, and commercial organizations and these businesses must have communication over a large geographical area, there can be no room for argument.

To render the long distance service of the telegraph companies effective, a large initial outlay is required. And as the rate which can be charged for this service cannot be put below the cost of that service plus a reasonable return on the investment, a number of duplicate organizations could not be supported. As a consequence, the development in telegraph companies has been a logical one and at the same time the most economical to the public. If graft has been exercised in the development of any of the telegraph companies, before their final absorption—that is quite another matter and is not an argument against the logical form that these organizations must take.

As a result, there has been a clear demarcation between long-distance and local communication. With the former, costs must obviously be higher. The further result of these controlling economic factors has been to confine the use of the telegraph largely to commercial enterprises which are warranted in carrying these higher charges.

Cost of Construction and Operation.—It is a fact commonly accepted by engineers, that the cost of telephone service in cities above a certain size increases at an increasing rate as tele-

phones are added to the system. But the income and costs of operations cannot be analyzed with the same exactness as can other public utilities on the basis of decreasing costs and increasing population.¹

Mr. Gansey R. Johnson, commenting upon costs of telephone operation in the annual report of the American Telephone and Telegraph Company, says in part: "The construction of the new lines average greater because the average length of line increases with the growth of the plant. The construction cost of the switchboard connections for both the old and the new lines increase because facilities must be provided at the switchboard to connect each line, old and new, with every other line, as well as extra facilities for the additional traffic. The unit of operation cost increases because as new connections are provided there is additional use of each line. . . . If the plant is trebled, then the limit of the demand is measured by a number of nine times the first one . . . while the actual demand never approaches the greater ratio than by simple addition."²

The greater efficiency in both administration and operation, in the large system, however, offsets to a considerable degree, the increased costs in central station equipment and operation. Risks are also reduced, because of greater geographical distribution, and, as suggested elsewhere, equipment can be purchased to greater advantage. In large industrial and commercial centers the equipment that must be displaced in order to provide for improved and larger facilities can be used in the new adjustments needed in smaller exchanges of the system. And a large system can also control the manufacture of telephone equipment, as the Bell system, a subsidiary to the American Telephone and Telegraph Company does in its control of the Western Electric Company. But the larger and better service rendered to the subscribers must not be lost sight of in a study of costs.

¹*Report of the Committee on Gas, Oil, and Electric Light, of the City Council of Chicago*, Sept. 3, 1907, on Telephone Service and Rates, p. 74.

²*Some Comments on the 1907 Annual Report of the American Telephone and Telegraph Company*, p. 5.

The most comprehensive view of plant values, construction costs, and operation expenses of any system can best be obtained by taking into account the relation of these factors to the changes in outside equipment, central office equipment, the kind of service given, the increase of business, and the change in rates. The equipment in a new company has always been of the simplest type, if the company has grown, it has been rapidly displaced as needs arose, and new inventions have been made. Light poles widely separated are replaced by heavy poles closely placed, grounded circuits are replaced by metallic cables, and simple operating boards are replaced by several switchboards that form a complete system. The stage that has been reached in development must consequently have a very important bearing on any conclusions drawn on construction costs or valuation of property.

The Bell system concerning which the most complete data can be obtained for the purpose of drawing conclusions on financial operations, has had a range of operation expense to telephone earnings of from 32.6 per cent in 1895 with a steady increase to 38.9 per cent in 1917.¹ Telephone expenses to telephone earnings for the same period have advanced from 67.3 per cent to 78.4 per cent. Depreciation and maintenance have approximated about 9 per cent.² The average operating expense to gross earnings of independents having an income above \$5,000 for the same period, was 70 per cent. The United States Census indirectly gives us another line of evidence in the difference in dividends earned by the Bell and independent systems, a difference which would be even greater if the independents had provided an adequate maintenance charge. The Bell system paid an average of 7.30 per cent (in 1917) on its common stock outstanding, and the independent companies having over \$5,000 income,³ an average of 3.17 per cent on common stock outstanding. This, of course, does not

¹Data taken for year prior to complete government control because they more nearly reflect normal results under private control.

²*Annual Report of the American Telephone and Telegraph Company for 1917*, p. 13.

³*United States Bureau of Census on Telephones, 1917* (printed 1920), p. 42.

give the status of all independents any more than a general average of a group of industrials would give the status of the International Harvester Company. It does, however, indicate that there are a very large number of companies paying no dividends or very small dividends. It also shows the very successful operation of the whole Bell group or at least a very large part of it.

A great deal of the old wire mileage of the telegraph companies was built of iron, and as this must be replaced by copper, it will place a rather heavy burden on some of the subsidiaries, for some of them have made no provision for depreciation:

“The price of service must cover the costs entailed by the investments. . . . The cost of this equipment is independent of the amount per hour that the lines may be utilized to convey, and this investment is the same whether the number of messages put over the line is large or small. But the larger use which is made of busy lines, such as a largely used flat-rate line uses up more than an even proportion of switchboard space and consequent switchboard investment. . . . There is thus an investment, which it may be readily observed is fixed, whether the number of messages over the line is large or small. We may call this the readiness to serve investment, because it must be provided before service can be rendered to all. It includes subscribers' lines and instruments and a small portion of the switchboards with appropriate parts of real estate and other tributary property. Likewise, there is also a portion of investment which depends upon the number of messages sent over the line. We may call this 'service rendered' investment, because it is dependent upon the amount of the traffic; that is, the amount of service rendered. This is more particularly investment in switchboard, etc. . . . Indeed, certain subscribers entail an expense upon the company several times that entailed by other subscribers, even though each uses service over a line of the same character. . . . These differences, as already pointed out, affect the investment requisite to serve the different classes, but they still more affect the daily operating costs. For instance, the party who has a single party line measured-rate telephone, and uses it only four or five times a day, may be grouped at the central office switchboard with perhaps a hundred other users and their requirements served by a single operator . . . while the flat rate user makes a demand on operators' service which is so great that one operator can only

take care of a few subscribers. . . . Again it is manifest that subscribers who originate any number of messages over their line during a particular hour of the day, and use it sparingly during the other hours, may be less economically served than subscribers whose service is more uniformly distributed throughout the business day."¹

Depreciation and Maintenance.—One of the constantly recurring conditions found by both the large independent and Bell telephone systems in taking over small properties, is the lack of a depreciation fund. Many of these companies, which have been absorbed, have had to be entirely rehabilitated. Obsolescence in equipment alone has been a very large charge, and, as with all electrical devices, the inventions of new telephone equipment have multiplied very rapidly. The failure to make provision for depreciation, has, as a result, been a frequent cause for the failure of telephone companies.

Large irregular maintenance charges from the destruction of wires by storm are, however, the greatest strain on small companies. Large companies, especially if their wires are distributed over a wide geographical area, reduce this risk; *i. e.*, this distribution constitutes a partial insurance. But the entire wire mileage of a small company, which operates within a narrow geographical area, may be completely crippled by a single storm. In such a case, the company's service is tied up for a long period, as there is no extra laboring force to concentrate on this emergency repair work. And with the very common practice among the smaller independent telephone companies of maintaining small reserves, the situation is increasingly embarrassing. The seriousness of such extraordinary losses is well illustrated by the experience of the Chesapeake and Potomac Telephone Company in Baltimore, at the time of its destructive fire.

The more prevalent rate of depreciation allowed by commissions and courts is about 7 per cent, assuming that the equipment has a life of twelve years.² The Missouri Supreme Court in the Home Telephone case allowed a depreciation fund of \$4

¹*Ibid.*

²Pioneer Telegraph and Telephone Company vs. Westhaver, 118 Pac. 354, January 10, 1911; Cumberland Telephone and Telegraph Company vs. City of Louisville, 187 Fed. 637, 655, Apr. 25, 1911.

per telephone per annum, which is approximately 5 per cent of the property value.¹ The method adopted by the Chicago Telephone Commission involves a constant 8 per cent charge against the plant (on a net cash basis), the sinking fund for this purpose being deposited at 3 per cent.² The Wisconsin commission in commenting on the Chicago method states: "Conditions prevailing at the Marinette exchange of the Wisconsin Telephone Company, call for a depreciation allowance of 10 per cent. The reason for the lower rate in Chicago is, that the greater part of the cable plant in Chicago is underground where it is permanent and relatively out of danger, the greater portion of the cable in Marinette is open, overhead, subject to sleet storms, high winds, gales and the like."³ A few cases have justified a 12 per cent rate, but the range from 6 to 10 per cent covers the usual charges that should be allowed. Allowances must be made both for the rate allowed on the sinking fund and the variable conditions that may exist, as suggested by the Wisconsin commission.

Public information concerning the depreciation of telegraph companies has never been very complete. The life of outside equipment is approximately the same as that of the telephone, but the inside equipment is neither as expensive nor has it been subject to as many radical changes and vicissitudes as the telephone. Neither have the mechanical complexities of the equipment necessitated costly expenditures and maintenance charges.

Rates.—No sufficiently large compilation of rates has been made to give any very authentic basis for general conclusions.⁴ The changes and the rapidity with which telephones have had to be installed, variations in the units used, the number of tele-

¹Home Telephone Company vs. City of Carthage, 235 Mo. 644, 139 S. W. 547, March 21, 1911.

²See also William H. Hagenah's *Report on the Investigation of the Chicago Telephone Company to the Committee on Gas, Oil and Electricity*, May 2, 1911, pp. 16-35.

³E. E. Payne et al. vs. Wisconsin Telephone Company, decided August 3, 1909, by the Railroad Commission of Wisconsin (this case contains an extensive discussion of the depreciation problem of telephone companies).

⁴The most comprehensive tabulation of exchange rates yet made is that of the Bureau of the United States Census, 1912, of 252 exchanges, which, of course, is out of date.

phones installed, the number of central offices required, the ordinances regulating the placing of wire, and the price of labor, are all reflected in the gross earnings.¹

The cost of installation, for example, will show a very wide fluctuation. In cities where the population is very mobile, changes will be very frequent. The same census report referred to above states:

"It is well known that the proportion of illiterates, the proportion of foreign born, the average income of the inhabitants, commercial and social activity, and topographical conditions differ very widely in various communities of the same size, and that these differences are naturally reflected in the character and volume of telephone service in such a manner as to affect rates.

"There are also some factors of commercial and social character of such peculiar importance in connection with telephone rates that in exchanges of the same size and of the same general character a particular schedule of rates will be remunerative where these factors are present and result in a deficit where they are absent."²

State Commissions have not always given legitimate attention to the importance of these differences. Some decisions show evidences that there has been an attempt to recognize them, but they are not always as carefully analyzed as they should be, because of a lack of a true appreciation of the problem. The greater danger has more often existed in the company's own construction policy, and under competition it has been forced to lower rates and pay dividends to the neglect of depreciation and maintenance. The courts have left the matter of rate charges fairly elastic by fixing the rate of return of the company and not the rate charge to the consumer. Thus if a reasonable rate has been determined by the court, charges must move up and down upon the basis of cost.³ But no commis-

¹*Telephones, Telegraphs and Municipal Signaling System, United States Census Bureau*, chap. iv (1912).

²*Ibid.*

³*Louisiana R. R. Commission vs. Cumberland Telephone and Telegraph Co.* 212 U. S. 414, 29 Sup. Ct. 53, ed. 577, Feb. 23, 1909. *City of Owensboro vs. Cumberland Telephone and Telegraph Co.* 174 Fed. 739, 99 C. C. A. December 14, 1909. *Home Telephone Co. vs. City of Carthage* 235, No. 644, 139, S. S. May 21, 19.M.

sion or court ruling should be allowed to deny the proper reward for the exceptionally skilful management that secures economy.¹

Telegraph companies have undoubtedly checked the growth of their business to some extent by not lowering rates, until very recent years. The limited capacity of a Morse operator to handle more than a given amount of work will not, however, permit of reduction below a certain rate. If this cost, together with the large installation cost of a plant covering sufficient territory, had made competition profitable, it would have brought a very much larger group of companies into existence. Loss from this policy will never again arise; public utility corporations fully appreciate that even if a monopoly is held, that a forced price may defeat their own purpose.

Bond Characteristics and Market.—As previously stated, the only securities of the telephone and telegraph companies in the United States that have a very wide market are those of the American Telephone and Telegraph and the Mackay Companies, and their subsidiaries. A number of the larger independents have a fairly active local market though not in any sense a national one. And even with these large systems, it is only the parent companies and the larger subsidiaries that have a national market.

The ratio of bonds to the total capitalization in both telephone and telegraph companies as compared to other public utilities is normally low in the stronger companies. This is as it should be, because of the relatively larger special risks. Under average conditions, interest charges are earned several times over, but if a very disastrous storm should occur, all earnings and surplus might be wiped out in this one extraordinary expense. It is in the organization which is large enough to cope safely with these risks that the investor should make his purchases.

¹Arizona Corporation Commission vs. Morenci Water Co., June 9, 1915.

CHAPTER XXV

GREAT LAKES STEAMSHIP BONDS

Steamship bonds are probably the least known of any class of investment securities. Considerable skepticism exists as to the safety of these bonds among certain investing institutions and the state banking departments of the states more remote from the Great Lakes states. This is due to the general fear of maritime risks and ignorance of the safeguards that have been placed about the Great Lakes steamship securities. Also the last named securities, the most desirable of the steamship bonds, are of comparatively recent origin. Bonds on the Great Lakes steamships have come into existence since the construction of steel vessels, as no bonds are issued on wooden vessels, excepting where a bond issued on a fleet may include a few vessels of the old wooden type. Usually, in such cases, very little value is given to these vessels. Although the first steel vessel on the Great Lakes was launched about 1885, it was not till after 1890 that steel came into common use in the construction of lake steamers, though it was already extensively used before this date on ocean going vessels. As a result, while there has been a very rapid increase in the number of steel vessels on the Great Lakes, there is still a much larger tonnage of wooden vessels.¹

The inter-related control of the steamship lines by the railroads doing coastwise shipping prior to the Great War and the small amount of American capital in the foreign carrying trade, due to our navigation laws, have discouraged investment in these latter companies. The issues of a corporation like the United States Fruit Company or the Standard Oil Companies which own a considerable number of fleets, cannot be consid-

¹*Report of Bureau of Navigation of the United States, 1919.*

ered in a general discussion of steamship securities, as such a large part of their holdings are in other properties. And the unhappy experience of the largest of the foreign carrying companies, the International Mercantile Marine has not given the ocean steamship securities an enviable reputation despite the fact that the holders of these bonds were fully compensated. What the influence of the War and the development of the construction of ocean going vessels will be, it is too early to predict. A proper correction of our navigation laws, which would make it possible to compete with the carrying trade of other countries, would build up a shipping trade equal to that of the old skipper days.

The Great Lakes steamship securities, on the other hand, have had an enviable reputation. It is safe to assume, on the basis of correspondence with the principal banks, trust companies, and bond houses of the chief lake port cities, that no Great Lakes steamship bond issue, up to date, has ever defaulted. A conservative investment house of Chicago, which has dealt more largely in these securities than any other house in that city, states in one of its published circulars that: "Steamship bonds have a splendid record. We are not aware of a single instance of loss to investors in this class of securities."¹

The ruling of the Interstate Commerce Commission requiring a separation of the control of steamship companies and railroads may have a temporary effect on the development of lake shipping, but it cannot long affect Great Lakes steamship bonds. The effect of this ruling upon steamship securities has not been as great as many had anticipated, as the steamers controlled by the railroads were financed through the railroad companies. The laws affecting ocean going trade are a serious menace. However, this subject is not within the province of this chapter.

Classes of Bonds.—There are four general classes of steamship bonds: first, those secured by a lien on a single vessel; second, those secured by a lien on a fleet; third, those secured by a lien on a fleet or single vessel and other properties; and

¹*Circular of Peabody Houghteling & Co.*

fourth, those issued by holding companies on the collateral security of stocks and bonds of subsidiary companies.

The importance of the third type, commonly known as the debenture or blanket mortgage, varies with the value of terminals and other holdings. Bonds of the third class, as well as those of the first and second, should always be a first lien on the properties mortgaged. The fourth type is used only by holding companies of coastwise and foreign going vessels. Where there is a large group of subsidiary securities, the distribution of risks, other things being equal, would make these securities very desirable. It would, therefore, be necessary to examine each subsidiary company to ascertain the value of the collateral security. But these latter have never had the enviable reputation possessed by the securities of either the Great Lakes single vessel securities or the blanket mortgages bonds on a fleet of vessels.

Physical Properties.—Where a large amount is placed upon one vessel or a small group of vessels, the necessity of a high standard of maintenance is obvious. The deterioration or lack of repair of certain parts of a vessel would put it out of commission, and as the vessel cannot be put to any other service, it becomes in such case valueless. No danger of loss exists from the ordinary service of lake steel vessels, if kept in proper repair, as their life is conservatively estimated to be between fifty and sixty years. Appraisers will allow a rating of first class on a steel vessel for twenty years, and if certain requirements are complied with, the period is extended. And as the bonds usually mature in ten years and are retired serially, the equity of the security is never endangered on a steel vessel, as long as the vessel is kept in good repair. Every mortgage deed should consequently provide that the vessel shall be kept in good repair (and any violation of the requirements shall be made a forfeiture of the mortgage). The condition of the vessel should regularly be made known to the trustees.

Financial Status.—The careful restrictions of the mortgage deed of lake steamer issues and the care with which they have been supervised, due to the influence of the Michigan and Ohio laws, have largely offset the meagre information the investors

in these bonds have had concerning the financial status of their equities. On the other hand, had the full and complete financial status of certain ocean-steamship companies been known, their securities would not have found the ready market they have. It probably could be said, however, that had the guardianship of these particular companies been the same as that assigned to the trustees of the lake steamship companies, the general information given would have been sufficient. Nevertheless, there seems to be no reason for believing that giving publicity to a sound financial policy can work an injury to a corporation.

Over-capitalization in the Great Lakes steamship corporations has never been an issue. The bonded debt has never exceeded 50 per cent of the value of a new vessel, the other one-half being paid by the stockholders in capital stock, so that no fictitious values have existed in the valuations of these vessels. Temporary obligations are always limited to a fixed sum or to a certain percentage of the bonds. The most frequent fixed amount is \$1,000 or 5 per cent of the authorized amount of the bond issue. These regulations are unknown to ocean steamships as a class.

The trustee should receive a quarterly detailed statement of earnings and expenses and a balance sheet, in order that he may know, whether the requirements of the mortgage deed are being fulfilled. As both interest and one-tenth (in a ten-year issue) of the principal must be retired annually, the margin of safety in earnings must essentially be larger than if interest alone were to be met.

Trust Deed.—The trust deeds of lake steamship bonds have been standardized by the requirements of the Michigan and Ohio savings banks laws, and as a consequence a large part of the securities are taken within this territory. This is not true of the ocean steamships. Considerable variations are found among the mortgage deeds of these companies, the majority of which place greater restrictions on the powers of their trustees, than do the lake steamer companies.

No mortgage deed should be accepted by an investor unless it is either on a freight or freight and passenger steamship. The

preponderance of earnings from freight revenue makes the reason for this obvious. Wooden vessels should never be accepted as security, excepting where they constitute a fractional part of a fleet. Where it is necessary to determine the size of the vessel it will be safe to accept as a guide the Michigan and Ohio laws, which limit the size to a minimum of five thousand tons. Where bonds are issued on a single vessel, the vessel should never be more than five to eight years old, although if the issue were made on a fleet with two or more new vessels, an older vessel might be included if the margin of the equity behind the bond were proportionately increased.

The most important single regulation covering all possible risks of losses to the vessel is the insurance clause (which will be described in a following section). The power of the trustee to enforce the regulations of the insurance clause should be quite absolute, as the sole equity is in the vessel itself. To allow insurance to be taken out in questionable companies, or the premiums to lapse for a week, or the vessel to make a voyage after the open season, might result in the whole equity being destroyed if a maritime storm or fire should occur. All other claims that might arise against the vessel, such as mechanics' liens, admiralty, statutory or other liens or claims, should be immediately settled by the mortgagee, for the failure to do this constitutes a default.

Current obligations should never exceed 5 to 7 per cent of the original amount of the mortgage. A failure to regulate current obligations would destroy the effectiveness of the company's serial retirement and the increase in the equity of the funded obligations. And these current obligations might be of such a character that they would have priority to any other claims. Again, failure to comply with these limitations could be made grounds for defalcation by the mortgagee.

All lake steamship bonds are redeemed in serial payments, while the majority of the ocean-going vessels have the sinking fund provisions. There is no question that the serial payment is the only dependable method of redemption for steamship bonds. Practically all of the outstanding bonds mature in ten annual payments. Seldom should the duration of these bonds

extend beyond fifteen years, because the first-class insurance ratings of vessels are for twenty years, and a sufficient margin should be allowed, and also because it is a safer guarantee against the losses that might occur from changing conditions affecting water transportation.

Insurance.—Particular care should be taken that all possible losses which in any way might affect the equity of the bondholder are fully protected by insurance. The risks involved in maritime business are relatively much larger than those in any other type of corporation, especially where a bond issue is made on one vessel. Even a company having vessels scattered in various lake ports may suffer heavy loss should a wide-spread maritime storm occur. Without a sufficient amount of insurance to cover all losses, a ship bond can only have a very highly speculative value and should be entirely eliminated from the investment class.

The insurance companies' forms and the respective amounts of all policies should be approved, and assigned as collateral security to the trustee in case of loss by indemnity or destruction of property during the life of the bonds. The trustee should be further empowered to prosecute and bring any necessary action in the courts, "to recover any and all insurance moneys which may become due and payable under any of said policies of insurance."¹ The amount of the insurance should be a much larger proportion of the value of a single vessel than of a fleet, as the risk involved in the former, other things being equal, is much larger than in the latter. Most authorities maintain that the insurance on a single boat should be no less than twenty-five per cent greater than the amount of the bonds outstanding. But the larger risk involved, in the security of bonds on a single vessel, as compared to the bonds on a fleet, is so apparent that it needs no discussion.

Further, the insurance should provide in detail that all "vessel property" covered by the mortgage "should be insured against loss by fire, and against all marine risks and disasters, general and particular average and collision liability including

¹Mortgage Deed of Vulcan Steamship Company (dated Jan. 1, 1907).

also protection and indemnity insurance (on form, covering, among other things, liability for injuries to persons.)”¹ . . . “That it [the steamship company] will navigate said vessel at all times in strict accordance with the terms of said insurance policies, complying with all the provisions thereof, and, that prior to the close of the season of navigation and prior to the time limit in said policies for the expiration of the maritime insurance covered, it will lay up said vessel in accordance with the terms of said policy or policies so that the same shall always be kept in full force and effect” and the trustee in this particular case must be given proper notification of all of these acts.²

Michigan and Ohio Laws.—The state savings banks of thirteen states will allow the investment of state savings banks funds in steamship securities, if certain statutory requirements are fulfilled.³ Seventeen states according to the state banking commissioners of these states deny savings banks the right of investing in these securities on the basis of the existing statutes.⁴ The Michigan and Ohio laws are the only specific statutes governing the purchase of steamship securities of the Great Lakes. These statutes are so well drawn up that the savings banks of these states have never suffered any losses. Further, these laws, which grew out of the demands of the conservative bankers, have been largely instrumental in forcing all the securities issued by companies in the Great Lakes regions to comply with the requirements of these laws. Both the Ohio and the Michigan laws require that the mortgages shall be upon lake steamers carrying freight or passengers and freight, but not on vessels carrying passengers alone. The minimum tonnage capacity in both cases is 5,000 tons. While the Ohio

¹From Mortgage Deed of the Cleveland and Buffalo Transit Co. (dated Jan. 1, 1913), Article II.

²Vulcan Steamship Mortgage Deed, *Ibid.*

³The following list of states under notes 1 and 2 was secured through correspondence with the savings banks departments of these respective states: Maine, Virginia, Delaware, Maryland, Iowa, Michigan, Ohio, Kentucky, Louisiana, Alabama, South Dakota, Utah and Washington.

⁴Connecticut, New Jersey, Vermont, New Hampshire, New York, Massachusetts, Kansas, Minnesota, Illinois, Missouri, Wisconsin, Arkansas, Texas, Oklahoma, Wyoming, Idaho and California.

law permits a bond issue to be made on a vessel five years after its completion and entrance into service, the Michigan law allows a lapse of only one year.

In both states the mortgage must not exceed 50 per cent of the original cost of the vessel. The requirement of the annual retirement of ten per cent of the principal beginning within two years after the issuing date of the bonds and the limitation of current obligations to five per cent of the original principal of the bonds issued are similar. Both laws provide that the owners of the vessel or vessels shall purchase insurance to their full insurable value to cover all risks, and all policies are to be approved by the trustee. A schedule of these policies signed by the trustee shall be filed with the state savings bank department. Likewise, the payment for losses by the insurance company and the method of distributing these incomes must be reported in a similar manner by the trustee.

Denomination, Duration and Yield.—The denominations of steamship bonds are more frequently in the \$1,000 series, though a number of \$500 denominations are outstanding. Despite the general sentiment against these securities, the limited amount and the eagerness with which the issues are taken up in the lake ports have made them as acceptable as railroad bonds. Hence, the bankers have not had to make an appeal to the small investor. The majority of the serial bonds prior to 1916 were issued at par on a five per cent nominal rate, though a few of the smaller companies sold on a six per cent basis. The lake steamship bonds are usually issued in serial form with a duration of ten years. The proportionate retirement and increasing equity of the serial bonds have been important factors in placing steamship bonds on such a high plane.

CHAPTER XXVI

INDUSTRIAL BONDS

*Character and Size of Business.*¹—The wide field embraced by industrials and the many and varied influences which affect the different types of industrials, necessitate a general classification not only of each industry, but often of a particular branch of a single industry. Even to classify, for example, all companies manufacturing machinery under one head and to analyze them on the same basis, would frequently lead to erroneous conclusions. A company which manufactures small machinery and extends short time credit would adopt an entirely different financial policy from that of a company producing heavy machinery on longer time credit. Again certain types of industries, such as the clothing business, respond more quickly than others to periods of industrial and commercial depression. These industries are usually forced to cut prices in an attempt to retain their trade, in order to meet fixed expenditures.

Considerable differences also exist between the manufacturers of partly finished and finished products, and between the manufacturers of necessities and luxuries. Though the producers of the staple food stuffs will be more or less affected during a period of stringency, they will not be to nearly the same extent as manufacturers of ornamental trinkets. A company manufacturing a highly specialized article that is subject to the whim of fashion may also find itself in a precarious position, unless the plant can be converted quickly to another use. This is not true of companies manufacturing products for which a day to day demand exists. Such corporations, for example, as soap and cracker makers prosper because of the steady buying

¹The character of the management and control particularly apply to industrial corporations. See chap. iv for a discussion of this topic.

demand. Industries, such as the manufacture of automobile products which in part can be classed as a luxury or necessity, must be checked even more closely to discover the effect of fluctuating market conditions on the earnings. The rapid growth in the use of the automobile and the truck has until recently largely offset any reactionary influences. Eventually, the industry will settle to a normal growth, and like the shoe industry, shift from a speculative to a well-established basis and consequently yield a more constant rate of return. A fad quickly developed for bicycle riding just before the automobile became commercially practical, and in five years a large bicycle industry was established. With the increasing use of the automobile, the major part of the demand for bicycles disappeared as quickly as it had developed. The manufacturers who were not shrewd enough to anticipate this almost entire temporary stoppage of the bicycle business were forced into receivership.

Industrials tend to vary in efficiency with the size of the organization. In many cases unusual efficiency is obtained in the large enterprises, yet the United States Steel Corporation in its brief before the United States District Court, maintained that there is a limitation of efficiency in large scale production.¹ Greater efficiency in the operation of a small plant has often offset the advantages normally accruing to large scale organization.

While there is other evidence indicating the necessity of a qualified acceptance of the continuing advantages of ever-increasing large scale production, there is no question but that the average well managed large corporation has a decided financial advantage. To the investor, this is of the more immediate importance. The banker can offer more advantageous terms on the large loans needed for corporate purposes by a large corporation, other things being equal, than he can to the smaller corporation with its less easily negotiable loans.

Competition.—Railroads and street railways are at least limited monopolies, but few industrials are ever free from competition. An industrial corporation manager putting out a

¹*Abstract United States Supreme Court Decision, 1920.*

single product may waken to find that overnight some new process (which will entirely displace his own) has been invented. The success of a great advertising campaign, an advantage in locality, replacement by superior patents, and a score or more of new and shifting conditions often create competition that makes serious inroads into a corporation's profits.

The change of a freight rate or the strict enforcement of the long and short haul clause, may deprive the corporation of a part at least of the advantages of location and check the development of a company that would otherwise give great promise. A more cleverly devised campaign of advertising may be sufficient to turn the tide of customers to another company. Superior purchasing ability, a better quality of goods, a more acceptable handling of customers, a better method of delivery, a greater elasticity in credit, etc., these separately or combined may turn the tide; and such is the psychology of the crowd, that often fashion's stamp of approval is enough to control the market.

Even the United States Steel Corporation¹ has not retained the measure of control of the steel market it first possessed. Its almost complete control of ore supply only stimulated to greater endeavor the efforts of its rivals in the discovery of new supplies. The first great leather combination, the United States Leather Company, at the time of its organization failed to consider that under the old process then in use hides could be tanned in small quantities as cheaply as in large quantities, and competition soon forced reorganization. The competition in the manufacture of heavy reciprocating engines which was the principal type of engine manufactured by the old Allis Chalmers's Company greatly hastened the reorganization of that corporation. The difficulties to be overcome in acquiring control of any large corporation are measures in themselves of the stability and security of a corporation's market.

¹See such works as A. Cotter's *The Authentic History of the United States Steel Corporation* (1916); United States, *United States Steel Hearings*, 62nd Congress 1st session, and *United States Supreme Court Case*, 1921; Abraham Berglund, *The United States Steel Corporation* (1907).

Except for short term bonds, patent do not always offer sound security. With the great number of patents existing, there is always the danger of infringement and contest in the courts. If a contest is likely to arise, this fact at once places the corporation in the speculative class. For illustration, the owners of the Taylor-White process for making steel tools, who had received a very large income from their monopoly for a number of years, found that by order of the court their process could not be patented. Danger lies in new inventions and processes, for other corporations are always ready to attack the rights of a patent, especially if it bears any resemblance to an existing patent. The possibility of a new patent or process which can be substituted for the old, probably offers the greatest danger in the control of the existing market. With the kodak patents, certain automobile devices, and harvest machinery, the contrary has been true, and the patents have been worth millions; but these cases are so few in number that they are easily catalogued.¹

The reader must not infer that in speaking of these numerous drawbacks existing in industrial corporations, the writer would make a wholesale condemnation of all industrial enterprises. In fact, splendid opportunities are available in industrial bonds, but great care should be exercised in their selection.

*Management.*²—In no one of the businesses discussed in this volume is the question of management so important as in industrials. A complete chapter might well be devoted to this subject. Even in the well established industrials of today, no great industrial corporation can be named which does not at once suggest the name of an industrial leader. In a railroad organization, because of the high standardization, it is easy to transfer men from one system to another without seriously affecting operations. A shift of an important person in an industrial organization often leads to serious consequences. The

¹Edward Sherwood Meade, *The Careful Investor* (1914), pp. 206-222. (This chapter is devoted to a discussion of the security based upon Patents and Monopoly Control.)

²See chap. iv, Topic on Management, Control and Organization.

problems of management are so diversified in this class of corporations that any standardization must have decided limitations. On the other hand, an investor should always be wary of the long termed bonds on a "single-man controlled organization." An organization entirely dependent upon one man, sooner or later meets serious difficulties. As this book goes to press, there is a corporation of international reputation which is in this very predicament, because of its one man control and the failure of this man to recognize the supreme value to a corporation of a well-rounded and strongly "manned organization." To the investor in long termed industrials, a differentiation between these two types of management is most essential.

*Fixed Property Accounts.*¹—The items entering into the fixed property accounts of industrials—land, buildings and equipment, should be given separately, but unfortunately very few corporations, even with the more complete reports, subdivide properly the items on the balance sheet.

If the ground value of a corporation's real estate has been conservatively appraised and is highly marketable for general business use, mortgage bonds based thereon should be perfectly safe. Such an appraisal figure would not necessarily agree with the valuation appearing on the balance sheet, which should be at cost. Of course, it is desirable that unimproved and unused property be stated separately. Titles should be above question.

If any part of the property is leased and the lease is part of the security for funded debt, a sinking fund should be provided to take care of the diminishing value.

All buildings and equipment should be amply covered by fire insurance to protect the business—and the security holder—against unnecessary loss. This insurance, if possible, should cover both physical and business losses. The latter is written

¹In connection with the topics in this chapter on Fixed Property Account, Depreciation and Working Capital review the subject matter in chap. ix. Some duplication will be found of the material in this chapter, but it is thought best to treat the material consecutively despite the duplication.

only for the very highest type of industrial corporation, owing to the moral risk involved during dull periods.

Depreciation.—Equipment and buildings should be carried at cost with a sufficient reserve to cover depreciation. No general rule, as is intimated under the general discussion of depreciation,¹ can be adopted to cover any particular plant. Machinery is very much better taken care of by some organizations than by others, and this care, of course, lengthens its life. But with the average business the general rate of depreciation applied to that class of industry as a whole, will be a close enough approximation for its acceptance in the investor's analysis.

A sound analysis of the financial condition of any corporation should clearly distinguish between capital and revenues. The failure to do so confuses investment and income. Until recently, but a very limited number of industrials took cognizance of this in their financial policy. As a result, time and again corporations have paid out in dividends, earnings that should have been charged to offset the depreciation of the plant or equipment. Though the effect of efficiency and depreciation must be differentiated and a failure to allow correctly for depreciation may not affect efficiency on the same pro rata basis, it may become a very serious impairment to efficiency in certain lines of industry. Sooner or later, obsolescence or inadequacy will force a replacement. If provisions for depreciation have not been made, existing book values will be misleading.

Even where depreciation has been considered, corporations have very frequently followed no definite policy, other than making allowances on the basis of "fat and lean years." Where gross income fluctuates in comparatively narrow limits, and at somewhat equally measured intervals, such a method will give a fairly true portrayal of plant values. But where the fluctuations are wide, irregular and especially at long intervals, or where allowances are made at pleasure, plant values as represented by the bookkeeper may be largely fictitious. The

¹Chap. v.

accepted accounting methods and regulation requirements of railroads have almost eliminated difficulties of this kind in these corporations; but the non-acceptance of sound accounting by many industrial corporations has resulted in many questionable conclusions being drawn from these data.

Maintenance.—While maintenance as an account is different from depreciation, the source for its provision should be the same, namely, a charge against operation. Weak corporations find maintenance, next to depreciation, the easiest item to neglect in their accounts. The immediate effects of skimping maintenance may not be so serious, but ultimately the operating efficiency of the plant must suffer and physical depreciation be greatly accelerated.

On the other hand, outlays, for additions to the plant are sometimes systematically concealed, being charged to the maintenance account which virtually turns part of this account into a secret reserve. Where an inside controlling interest has desired to conceal the amount of current earnings from the minority holders, surcharging the maintenance account has often been resorted to. This practice of concealing earnings under the cloak of depreciation or maintenance may cause a sagging of the security price, and enable the controlling interests to acquire securities at low prices but to the loss of the deceived minority security holders.

Goodwill.—"Goodwill as defined by one author is an immaterial or intangible asset which represents the value of superior organization, high reputation, advantageous location, or any other circumstance which gives greater carrying power to a business than ordinary returns upon capital cost invested."¹ Normally, then, a new enterprise should seldom have any goodwill represented in its accounts, as the advantages of this asset usually can only be reflected in the earnings of a growing concern. But a new organization or a reorganization growing out of receivership frequently evaluates goodwill on the basis of estimated earnings, and the overly sanguine expectations of

¹John Bauer, Reprint from *The Accountant* (England), December 13, 1913, p. 2.

speculative promoters have frequently led to unrealized anticipations, resulting in long continued sagging prices of the securities or bankruptcy of the corporation. Where these estimates are realized within a reasonable time, there can be no very serious objection to giving them value, as they are added proof of the efficiency and judgment of the management. But only in very rare instances can good will be used as a substitute for property equity in securing a bond issue.

Where the necessary earnings of a corporation have the normal range of fluctuations, the valuation of goodwill (as far as the investor's interests are concerned) is a simple matter. If it is correctly separated from other property accounts, and a fair return on the business determined, the earnings above the amount (at the determined rate) on the total investments, capitalized, would give the value of goodwill on the basis of the going concern. Ample margin should be allowed, as in the security upon fixed property.

*Working Capital.*¹—The condition of accounts embodied under working capital, reveal to a large extent the strength or weakness of an industrial company. The lack of working capital has been the most frequent cause for the failure of industrial corporations, and it is always a temptation for the management to use this working capital for speculative purposes, particularly during periods of inflation, the very time it should be most zealously guarded. Great danger exists to the corporation which weakens its working capital through payment of unjustified dividends or through over-expansion in the accumulation of inventories, such as existed in many industrial corporations at the end of 1920.

Theoretical working capital as herein defined, may have been the same for a company in 1920 as in 1914, even though the inventories increased into the millions and were offset

¹ "Working capital or Net Current Assets are the net free quick assets of a corporation, not usually given on a balance sheet found by subtracting current liabilities from current assets." Clinton Colver, *How to Analyze Industrial Securities* (1919), p. 153.

The term working capital is loosely used and the reader should constantly watch the sense in which the term is used. Some industrial circulars, for example, refer to working capital as the amount of the total current assets.

by an equivalent increase in the current payables. The detailed examination of the accounts, however, shows an entirely different condition. Goods may become unsalable, at least at anything like the price paid, while bills payable have to be met. The effect of this may be disastrous. In other words, working capital must never be considered apart from the individual condition of both current assets and current liabilities.

After the amount of the working capital funds are determined for any company, it is essential to find out first, what has been the policy of the company in appropriating funds out of current income to meet an expanding need of working capital. These funds may come from the issue of bonds and stocks, from commercial credit or from current earnings. If the needed appropriations have come from the last named over a series of years, the company will normally show unusual strength. While stocks or both bonds and stocks must be issued in the initial launching of a company or in a large immediate expansion, the continued drawing of all working capital from the outside will reflect weaknesses in the company. A comparison of industrial corporations which have obtained working funds from earnings, with others which have freely issued securities, will show that on the average the financial position of the former will average better, and the price of their securities will reflect the influence of the more conservative management.

The use of commercial credit, usually necessary at certain times of each year, depends entirely upon the character of the company and upon the banking connections it possesses. When there is a need of large working capital during only a few weeks of the year, there is unquestionably a decided advantage in securing a part of this fund from the banks. The important consideration here, however, is not only whether the corporation is strong enough to receive an extension of credit, if necessary, but also whether it will be able to secure the funds in a strained market. While one corporation may fail because its banking connections are not strong enough for it to obtain the extension of a loan, another corporation will weather a strain because of its ability to secure a loan.

Another important consideration in the analysis of working capital is the examination of the individual items of current accounts in industrial corporations. The easiest and most effective juggling can be and has been done in the handling of current assets and liabilities. The greatest abuse, no doubt, has been the manipulation of inter-company accounts between the subsidiaries of a holding company. This can easily be done if a consolidated income statement is not issued. If such a statement is obtained, as well as the individual income statements and balance sheets of the subsidiaries, it is not a difficult matter to acquire the ability to distinguish the relative importance of the current accounts.

Where securities are held, their value must be individually checked. Securities carried as the assets of the company are often those of subsidiary companies. They should be carried as fixed assets or more preferably as separate accounts and not as current assets as some companies carry them. If there are large security holdings of outside companies, their value must be determined; first, on the strength of the issuing company and second, on their convertibility. For, should these securities not be readily convertible without sacrifice, they would possess little value to the corporation for current needs which might be the vital thing involved here. Only readily marketable securities, not connected with or vital to a corporation's business, should be considered among current asset items, if conservative practice is to be followed.

If the stock of raw materials or finished products is large at the period of high production, conditions are normal; but a large amount of finished stock at the end of the important seasonal sale period of that industry indicates a decided weakness. If the company does a fairly constant business and is not subject or only slightly subject to seasonal influences, there are usually no radical changes in the value of inventory stocks, except when large fluctuation occurs in the price of raw products and a company takes advantage of the market too long, or, on the other hand, suffers from a sudden decline in the market values of goods on hand.

Accounts and bills receivable vary with the types of indus-

try. A certain company manufacturing heavy farm machinery must, under present credit policies, carry farm notes six months or more. Certain classes of food products companies, on the other hand, will not carry receivables more than fifteen to thirty days. While the proper allowance should be made for seasonal fluctuations, the proportion of the amount of these accounts to the gross sales of the business should be scrutinized carefully. A period of industrial and commercial strain may greatly overburden the company with doubtful accounts, which, though on their face show a very strong position in quick assets, are decidedly misleading.

The variables affecting the total amount of working capital and earnings are then: the size of the corporation and the volume of business, the variety of the products, the expansion of the business, the conditions affecting the supply and purchase of raw material, the seasonal influences on the business, the steadiness and regularity in the market demand for the product, the terms of payment, and the length of time that it takes to put the finished product on the market.¹

With the character of the accounts established, the ratio between current assets and current liabilities should be checked. Again the exact ratio depends upon the type of business, and a complete consideration of this one point would entail a more elaborate and detailed discussion than can be given in an elementary text book, on the principles of investments. It is sufficient here to follow the established rule of this text in merely pointing out the principle. Two to one is generally considered a fair average proportion, though some companies show as much as six to one. As pointed out above, exact ratios between the items of working capital must be determined by the character of the business and ratios given can be taken only as general averages. A business having a ratio of three to one might be in a very much stronger position than another having a ratio of five to one.

Sales, Earnings, and Expenses.—The net revenues of an industrial vary with the volume of business, the prices of the

¹William H. Lough, *Corporation Finance* (1909), pp. 293-294; Clinton Colver, *How to Analyze Industrial Securities* (1919), pp. 153-156.

commodities, and the cost of operation.¹ The sales of industrials are always subject to fluctuations. A period of depression will normally cause a falling off in sales which will usually vary to the degree the commodities produced, are essentials. Industrials, with a few rare exceptions, can never hope to attain the stability either in business or in profits possessed by most public utility companies.

If a company enjoys for a few years a fairly consistent increase in business and in net earnings, and carefully conserves its resources—especially if it keeps its net quick asset position strong, the time may come when it will not be affected seriously by normal fluctuations in earnings. Its savings, like that of a successful and prudent individual, will act as a balance wheel to carry it over its difficulties.² Just as most individuals are seriously affected by changing general conditions, so are corporations, and as intimated above, industrials particularly. Depressions in general business, such as in 1908, 1914, and 1920, for example, bring out the fact, realized by few, that business and net earnings in periods of inflation must be discounted.

In the final analysis, earnings are the criterion of value and this means earnings not of one or two years, but of several including at least one year of general depression. If a company's common stock holds up relatively well in the market when most stocks are falling rapidly, and if it has proven that it can endure the strain of competition during dull times when competition is actual, then its bonds will warrant serious consideration.

¹The source of "Income from Other Sources," as stated in chap. v, should be specifically enough stated to prevent its confusion with income derived from actual operations. With a very large outside income, it would be a simple matter to conceal deficiencies in operation, and regulate to a certain extent the fluctuations in earnings. It would also be an easy matter for the same purpose to transfer the income of subsidiaries, though the danger of this is obviated by consolidated balance sheets and income statements.

The disposition of net profits gives another clue to the policy of management. If ample margins have been left to provide for regular but lower dividends, rather than irregular dividends, though higher dividends; this policy is positive evidence of conservative management. And any company which does not create a surplus out of earnings upon some fixed basis cannot be recommended as an investment,

²See chap. v.

Further, it is more than conceivable that companies may so fortify themselves through conserving net quick assets during periods of liberal earnings that, like prosperous farmers in the cotton belt or in the "dry farm" areas, they can maintain unassailable solvency during any period of depression which they may reasonably be expected to encounter. A concrete example is the steel industry. Steel is a "prince or pauper" industry, yet certain companies, such as the United States Steel Corporation have so strengthened themselves financially that their bonds continue to enjoy high regard in investment markets at times when the industry seems at a hopeless standstill.

However, it is important to note whether, judged over a series of years, net earnings in comparison to sales hold up well. Because of gradual but forced reduction of prices on account of merciless competition, many a company having bonds well within the investment classification might eventually suffer seriously. Under such conditions only such companies can expect to survive as can produce at the lowest cost per unit of output and are exceedingly strong financially. Yet the effect of the fluctuations of gross earnings may be very different from the ultimate effect on net earnings. One company may suffer a fall of five points in net to every five-point decrease in gross, while another company may have but a one-point fall in net to every five-point fall.

Legal Status of Industrial Securities.—A few states in an effort to build up a local industry, have exempted the securities of domestic corporations from taxation if held within the state. In some states this exemption is confined to stock issues; bonds remaining fully taxable. Comparatively few investment securities of large corporations are affected by such tax exemption laws. Moreover, the price of the strictly investment security free of state tax is almost always priced in the market to discount the advantage it enjoys.

Except in three states, no industrial securities are legal investments for savings banks, per force of specific laws. A number of western states leave the approval of securities to the discretion of state officials. Other states specifically bar industrial bonds from the savings bank class. On the other hand, two of

the old conservative New England states, Maine and New Hampshire, have laws in effect which make provision for the admission of local industrial corporation securities—complying, of course, with special requirements—to the coveted status of “legal for savings banks.”

There seem to be no good reasons why certain industrial bonds should not be legal for savings bank and trust funds of all states. They are certainly higher grade in every way than certain “legal” railroad issues. About the only recommendation that can be given a number of the latter is that the inertia of the law gives them special privileges.

Possibilities in Industrial Bonds.—During the recent temporary eclipse of railroad and public utility securities, industrial securities not only gained their rightful place as investments but gained prominence as a class, which they did not deserve. Investors who heretofore had confined their purchases to the highest grade railroad and public utility underlying bonds, took on large blocks of debenture bonds and even preferred stocks of unseasoned and highly speculative industrial corporations. The drastic liquidation of 1920 clearly evidenced the folly of such action.

Securities cannot be judged by classes. No other security is so hopelessly bad as a bad government or municipal obligation. A government, municipal, railroad, public utility, or industrial security is desirable if it passes the acid test of analysis.

Owing to the building of financial strength during periods of great industrial prosperity many high grade “instantly marketable industrial” bonds are available in the market. Only such should be considered by investors.

CHAPTER XXVII

TIMBER BONDS

When the logging and milling companies were small, the capital of the owners or the amount which they could raise on their personal credit was sufficient to produce and market all of their products. But with the rapid increase in consumption and the consequent necessity of obtaining large tracts of timber, the consolidation of the logging, milling, and manufacturing industries soon introduced the practice of making bond issues by companies which desired the advantages of a combination of all these factors in production. The proceeds from these bond issues were used in buying new tracts, in building plants, mills, railroads, and in providing equipment for marketing the product.

The experience of timber bonds in the general market does not extend over twenty-five years; and, as is the case with all new securities, the large returns of the first enterprises stimulated speculative underwriters to assume unwarranted risks. Another group of underwriters (fortunately few), through a lack of understanding or a disregard of the fundamental principles of timber securities, frequently allowed an over issue of securities on a property. These conditions, together with a temporary slump in the lumber industry at times, fortunately forced rather an early reaction in the development of the timber security market. Unfortunately, as in all such experiences, a number of timber bonds which are classed among the safest securities, suffered from the odium of this unwarranted speculation.

Supply and Consumption of Timber.—The timber supply of the United States has been disappearing at an alarming rate, but it has been only in the last fifteen years that the general public has given any serious attention to the warning of the

conservationists. Parts of New England which were formerly covered with timber have been stripped of their virgin forests. The Great Lakes states twenty years ago passed the height of their production, the Southern states are now producing at their best, and the Western states are fast entering their zenith. In 1880, Michigan, New York, Pennsylvania, and Missouri supplied approximately 50 per cent of the lumber cut. Today, they are supplying less than 10 per cent.

No attempt of any consequence has been made to abate this rapid exhaustion of the timber supply. The only protection against the extermination of the forests has been the few small reserves set aside by the United States government, and such small attempts as the Pennsylvania Railroad and a few private corporations have made by planting a quick growing variety of trees for use as ties. A prominent timber authority states:

"No matter how soon we start in to duplicate our timbered areas by restoration, it will take at least fifty years to grow medium sized soft wood trees, which will produce only low grade lumber, and from two hundred to five hundred years to obtain large high grade stock from the same trees, and the more valuable woods . . . the period will run from three hundred to two thousand years to attain the present growth of these old forests . . . and to plant and cultivate for the shortest period mentioned, it will cost, with interest on the investment and other carrying charges, \$15 to \$20 per thousand stumpage and the yield will be a common and coarse grade of lumber. When you go beyond that period for harvesting, you make the operation practically an economic impossibility."¹

The cost of lumber just prior to the War was approximately eight times what it was in 1850. In 1920 the sawmills of the United States produced more than twice as many feet of lumber as in 1900. This, however, accounts for only one-half of the timber cut. The use, for example, of wood pulp has more than doubled in the last ten years. Ten years ago the United States furnished its entire supply of wood pulp, but now two-thirds of it is imported.

The United States also exports building timber to almost all

¹J. D. Lacy, Address before the *Eighth Annual Convention of the National Lumbermen's Association*,

of the important civilized countries of the world. These exports take about one-third of the net output of the United States. With the easier access of the Western timber area to the European market by way of the Panama Canal, the output of this Western area must materially increase in the next few years. While the wood-pulp supply in the United States is now largely supplemented by the imports from Canada, the standing timber of Canada has been greatly overestimated.¹ The Canadian Government now estimates her standing timber to be approximately one-third that of the United States. Too little is known of the forests of South America to estimate their ultimate effect on the output of the United States.

"The forests," states Gifford Pinchot, "are being cut three times faster than the natural growth. I estimate that in forty years, unless something radical is done towards the conservation of this resource, the commercial forests of the United States will be gone." Authorities have variously estimated that at the present rate of increase of consumption the timber supply in the United States will be exhausted in from twenty to seventy-five years.

Control of the Timber Supply.—The concentration in the control of the standing timber in the United States has had an important bearing upon the amount of securities issued in this industry. With less than 150 million dollars of timber bonds distributed among the general public, and the industry valued at from ten to fifteen billions, the evidence of concentration is apparent. While the federal government has been unmindful of the depletion, and heedless of the recommendations of the conservationists, the large lumber interests have been fully aware of the conditions and have quietly secured control of the large areas.

While concentration of control has been severely criticised from the public viewpoint, the opposing contentions are that it has resulted in more than compensating advantages. Concentration has to a degree meant conservation of supply through

¹Archibald Marshall, the *Statist Supplement* (London), June 11, 1911. (Seventy-five per cent of the available timber supply in Canada is controlled by United States capital.)

the checking of waste in the cutting, milling, and marketing of timber. In early days the industry practiced the most wanton waste. Had the old competitive method continued, this waste must have continued to a much larger degree than it does under the economies of large control, though increased prices alone would, of course, have forced increased economies. Large concentration of timber holdings has also enabled these corporations to establish mills and factories for producing finished wood materials and furniture, with the result that there has been an economizing both through a reduction of factory costs, and in the wholesale and retail distribution.

In the large timber areas two other possible means of timber conservation are available, which would result in great future savings to the people. Self-preservation will probably ultimately force their adoption. A few companies are already experimenting in a small way. First, a more careful selection of the timber cut might be made and the timber not fully developed be allowed to mature. The second, and the more practical method, would be to allow for a depreciation fund out of earnings to replant the cut area. Every forester realizes that if this latter policy had been required seventy-five years ago, the United States would not now be facing a timber famine. But as it is only for us to point out the influence of these conditions as affecting timber values, it is not necessary to enlarge on this problem.

Legal Prerequisites.—Four factors which are peculiar to a timber bond mortgage should be given especial consideration: first, the character of the items covered by the mortgage; second, the ratio of the mortgage to the value of the properties; third, the provisions for the cutting of the timber; fourth, the insurance and fire risks, which will be covered under a separate heading.

First, the lien of a timber bond is practically always a first mortgage. A second lien, except in rare cases where the amounts of both mortgages are small, could not find a market, or the rate of interest demanded would be too high for the corporation to carry. The mortgage should include a lien on the land, timber, and all appurtenances thereon. This latter item

would consist of such items as railroads, sawmills, flumes, and other sawmill and lumbering equipment, all of which should individually and collectively be covered by the mortgage. A great many errors have resulted in titles to timber land, because of the confusion and the lack of records that existed in the early settlement of new territory. One case is cited of the omission of thirty-six mortgages,¹ which would have had prior claims to the bonds had they not been discovered by the attorney of the bankers. Such omissions in a mortgage, needless to say, would impair the value of the equity behind the bonds. While we look to the standing timber for the greater part of the value back of the security, there are other items that may materially affect the bond.

In some of the older and smaller issues of timber bonds, the lien through error of the title was only on land and did not include the timber. In these latter cases, where the quality of the land is poor, there is little security for the bondholder in the case of default. The very remoteness of the timber acreage may give little or no value to the land when cleared. Again, if defalcation of the issue takes place, the omission of land values where the quality of the land is good, and especially if it is on a navigable stream, would ultimately remove a desirable part of the security that might offset the losses involved in the timber holdings due to foreclosure. The location of the land, therefore, is of importance in enhancing values, not only in the relation to the easy marketing of lumber which would reduce the fixed expenditures on the properties to a minimum, but also in the disposal of the land itself. During the period in which the flotation of timber securities was at its height, a bond house, in examining the location of a small company in one state, found that the cost of bringing the lumber to the nearest railroad would not leave sufficient money to pay the bonded interest.

If the timber land contains a navigable stream that could furnish water-power, it would strengthen the company's credit

¹Edward E. Barthell, *Timber Bonds as Investments*, *American Academy of Political and Social Science*, 1912, pp. 23-50.

position if this power could be used, as it would be a valuable addition to the security of the bonds. The value of this item, of course, would vary according to the location of the tract, as this would determine whether power could be sold. The property also has increased value if the land bears minerals in paying quantities, and the by-products of timber, as tar, pitch, turpentine, bark, tops, etc., are utilized.

It is highly undesirable that a very large part of the loan should be secured by plants, mills, or other equipment. When the timber has been cut, the depreciation equipment accounts should be entirely written off, this equipment having no value except as scrap. The equipment is usually built as cheaply as possible, in order to reduce the cost of the output, so that it is usually in a depreciated condition when the acreage available to the sawmills is cleared. When plants are located within large centers like Tacoma and Bellingham, Washington, and the plant is covered by a large fire risk guaranteed in the mortgage, a larger ratio of the plant value could be included as security, though insurance costs are usually too large to warrant such expenditures, excepting where the plant is close enough to the city to have adequate fire protection. Even then the charges are very high.

Secondly, there is always a very large margin required between the amount of the bond issue and the value of the properties. The value of the standing timber should be double the outstanding bond issue, and many authorities would claim that the land should be included in this valuation. In practice the loans made, range from 25 to 30 per cent of the market value of the outstanding timber. This should vary with the character of the wood, size of the logs, quantity of timber per acre, cost of the output, and accessibility to the market.

Thirdly, the provisions for the cutting of the timber are peculiar only to the timber bond. One provision in the mortgage deed uniformly provides that the timber which secures this mortgage cannot be cut. This provision would defeat the purpose of the bond issue, as no logging could be done; but the trust deed further provides that the trustee may release a certain acreage of timber—for illustration, 50 acres—from the

mortgage for cutting, if the value of the released amount is paid for in cash at the time of its release. The amount paid the trustee is put into a sinking fund which is used in paying off the principal of the outstanding bonds. For example, if a loan of \$1.00 per thousand feet has been made and the cruiser's report shows that the first area selected for cutting contained 500,000 feet, and the timber is valued at \$4.00 per thousand feet, \$2,000 would be paid to the trustee. This process is repeated with each 50-acre tract of the acreage which is released by the trustee. Thus the bonds are retired twice as fast as the timber is cut, so that when the timber land is half cut, the sinking fund should have been paid a sufficient amount to retire all of the bonds. The trustee, however, does not release the mortgages on the land itself, but only on the timber. The mortgage on the land continues until the whole debt against the properties has been paid.

The majority of these bonds are now issued for ten-year periods and retired by a sinking fund or serial payment method. Thus, as the trustee meets the interest charges, he also retires a portion of the principal as each serial payment falls due, thus increasing the security of the bonds still outstanding. A recent tendency is to make the first payments of these bonds from two to three years after the date of issuance in order to assist the corporation through the development stage. This period should not be less than five years. A number of companies have met with embarrassment because they were required to make these payments too soon. The trust deeds usually further provide that the corporation may call the bonds in part or in whole on any interest date at a stipulated premium price plus the accrued interest, and a number of the successful companies have been able to take advantage of this provision.

Timber bonds are frequently endorsed by private individuals. The long experience and ability in the timber business and the large personal fortunes of the men controlling the industry become a good guarantee for the security of these bonds. Occasionally, the land, instead of being owned in fee, is held under lease with the right to cut the timber. But as a rule timber lands are held in fee. Bond houses are reluctant

to lend large amounts on leased properties because of the increased possibilities of complications.

In concluding the discussion on legal requisites, a statement should be made as to the possible effect which serial payments, under certain contracts, might have on the safety of the payment of the interest charges and principal. When the serial payment must be met without qualification, it becomes necessary to continue cutting timber in order to meet the maturing obligations, though these payments might more profitably be postponed. If the price of lumber temporarily falls, the margin of security is wiped out by this forced sale process. And if the market is also glutted, it may result in the corporation being unable to meet its obligations. This is the embarrassment that a few companies experienced just prior to the War. Where the market can absorb the output, especially if prices are advancing, this difficulty cannot arise. Though the prices of forest products are much higher than they were twenty years ago, it must not be forgotten that acreages are also often purchased at the increased prices, and consequently these corporations have much narrower margins in their own equity.

Fire Risks.—The claim made by bond houses dealing in timber securities that no serious fires now occur in commercial timber cannot be accepted in its entirety. While the records of certain timber bond houses do show an absence of fire losses in the last fifteen years, the testimony of forestry experts does not altogether agree with this evidence. It is true that the reports of the latter include not only mercantile timber, but also forest reserves. With the improved ranger organizations of the United States and a few large lumber interests, the losses in the territory covered by this service are largely confined to young growth and small areas in matured forests. It is probable that in 75 per cent of the private forests, there is no attempt at fire protection.¹ The majority of the newspaper reports of forest fires are greatly exaggerated; nevertheless, at frequent intervals large losses have occurred. While the largest fire losses take place in young growth and do not affect the mercantile timber

¹H. S. Graves, *The Principles of Handling Woodlands*, p. 226.

supply, they do affect the future supply. According to M. E. Griffith, State Forester (1908) of Wisconsin, the damage to mature timber in that state in 1918 amounted to \$9,000,000.¹ In the Bitter Root Reserve, 20 per cent of the yellow pine has been destroyed in the last twenty years, and in the Priest Reserve, 20 per cent of the timber has been burned out in a period of thirty years. The United States Geological Report further states that out of a particular area of 1,000 acres in the Priest Reserve, 70 per cent of the standing timber has been destroyed by fire. Dr. C. A. Schenck estimates that approximately 2 per cent of the woodlands are damaged every year by fire.² Another proof that the risks have been large is the unwillingness on the part of insurance companies to assume the risk.³ Germany, France and Austria, with their more highly organized systems of forest protection, possess rates of insurance within the range of possibility.

The fire risks vary according to a number of local conditions. The pine belt of the Southern Appalachians has suffered little, for the branches are extremely high, and the trees widely separated. Where small underbrush does exist and is burned, it lessens the cost of logging. The swamps of Florida and Louisiana, and parts of Northern California, Oregon, Washington, and Northwest Canada, rarely experience fires because of the presence of fog and heavy rainfalls. Certain species, such as the Sequoias (including redwoods) are practically immune because of their thick bark. Trees with heavy sappy leaves also have far greater resistance to fire than the coniferous trees with resinous foliage. Droughts and dry soils also increase the fire risks of certain varieties of timber.

It is often possible to save a large part of the green timber area that has been burned over, if it is cut within two years. This is especially true of thick barked and sappy leaved trees. "In Oregon there is a company engaged in logging and manu-

¹*Wisconsin State Forestry Report*, 1908. (Quoted in *Taxation of Forest Lands* by Alfred K. Chittenden and Harry Jeon, p. 50.)

²Carl A. Schenck, *Some Business Problems of American Forestry* (1910), p. 20.

³Some London companies have underwritten risks in South America, but the rates are almost prohibitive.

facturing from a tract of red cedar that was killed over fifty years ago. It is in an excellent state of preservation today.”¹ Other varieties of trees may be left for several years, if they have only been killed but not seriously burned. Suffice it to say in conclusion, that as far as fire risks offset their security, the character of the trees and locality of the timber area are of the utmost importance to the investor in timber bonds.

The Timber Cruiser's Valuation.—The old timber cruisers were termed “land lookers.” They would return after an examination of a forest and verbally report that so many million feet of lumber were located along a certain stream or in a certain township. Gradually, however, with the demand for complete and perfect land titles, increased competition, and increase in the value of standing timber, more accurate reports were demanded. Now, with the actual count of standing timber required by the conservative timber bond underwriter, estimations are very accurately made, not only of the total standing timber, but also of the various kinds of wood in the area.

There is, of course, a great deal of difference in the accuracy with which the estimations are made. Cruisers in the past have not infrequently made dishonest returns. In fact, instances have been known where the cruiser has reported two to three times the actual amount of standing timber. Or the company employing the cruiser is unwilling to pay him an adequate sum for the cruise, and his estimate consequently is made in a very haphazard manner, simply by riding through the tract. Often a bond circular will state that various tracts of the acreage have been checked, and the estimate made on the basis of this check. Now it is quite probable that the cruiser may have selected the areas of heaviest growth to make up his check list, and the actual standing timber of the area is one-half to one-third of the estimate given in the cruiser's report. No cruise should be accepted unless it has been made on a zig-zag count

¹H. S. Graves, *The Principles of Handling Woodlands*. (Our losses from diseases, blights and insects are also considerable in some areas. In the last decade timber has been damaged by beetles to the amount of \$2,500,000 in the Black Hills of South Dakota and Wyoming.)

over half the area of every forty acres of the acreage, upon which the bonds are placed.

Of each forty acres, the cruiser's report should state in detail the amount of each species, quality and specific gravity of logs; also the amount of timber that can be used for large and small poles, ties, and posts, and the cord wood or wood pulp that might be obtained from the tops. The quantity of bark that could be used for tanning, if there are hemlock trees, and the number of reproductive tree-areas should also be given. Full particulars of available water, ice, snow, railroad or public road transportation, distance to market, climatic conditions affecting logging, topography, surface indications of minerals, and the land that could be used for agricultural purposes are likewise essential to a complete report.

Balance Sheet and Income Statement.—One of the most common criticisms that can be made of timber securities is the dearth of information concerning the financial status of the company after the securities have been floated. In 1915 an inquiry was made of a bond house concerning a company whose bonds they had underwritten three years previous. They had no information of any kind whatsoever of the company. The claim made, was that the protection given the bondholder through the sworn statements of the corporation made to the trustees, was sufficient. The company might as well have said that so long as the interest charges were paid the condition of the property was of no concern. Needless to say, this investment house was not keeping faith with its clientele.

It is as imperative to the sound security of a timber company, as to that of any industrial, that its financial status be known as that the rigid requirements of its trust deeds be fulfilled. If the published statements of timber companies were audited by a reputable accounting firm, they would serve as further evidence of the truth of the cruisers' reports, for the certified accountant's obligation will necessitate his passing upon this valuation. The condition, variation or increase in accounts receivable, accounts payable, inventories, the handling of depreciation, the setting up of the proper reserves, the proper allot-

ment of costs, and the continued earnings maintained are all factors which the investor is entitled to know.

The Market.—The comparative newness of these securities and the relatively small amount yet issued greatly limit the breadth of their market. They cannot be said to have an active market; consequently they lack ready convertibility. The only possible market that the holder of a timber bond has, is the issuing investment house, and in rare instances some lumber owners. This permits the issuing bond house, where it possesses the funds to sustain the market of its own issue. Where the issuing house is not able to do so, in case of a depressed market or where a corporation is suffering from a relapse, there will be a considerable fall in the price of the security. The possible losses under such a condition should be estimated and an equivalent decrease in the purchase price of the security be required.

BOOK III

BONDS SECURED BY LAND
OR REAL ESTATE

CHAPTER XXVIII

REAL ESTATE MORTGAGES

Mortgages on real estate¹ in large cities are becoming more and more a favorite form of investment. This may be accounted for by the rapid growth of metropolitan land values as well as the high yield of the securities. By reason of age and basis of security, this class of investments should long since have held first place among investment offerings. But real estate mortgages have a singularly disorganized market, largely owing to the difficulty of issuing securities of standard denominations such as are possible to railroad corporation bonds. This has narrowed the market for these securities and resulted, as a rule, in a higher yield than can be realized from other securities possessing equal safety.

A number of other factors have also contributed to both the high cost and unequal rates of real estate mortgages. The United States, until very recently, has been continually pioneering and developing new commercial and industrial centers. Little available free capital exists in new localities for investment purposes, as surplus funds are usually reinvested in personal enterprises. In the early days of the investment market, conservative investors in the Eastern seaboard states who were receiving large returns on railroad securities were, with few exceptions, unwilling to risk their money in unknown and untried localities. As a result, when funds were needed for investment in mortgages, it was necessary to obtain them from the immediate locality, where a knowledge of the security was easily obtained, for the comparatively large cost of floating a

¹Though Real Estate and Building Loan Associations have a legitimate place in the field of investments, they are usually not included under the general head of investment securities.

small loan in a wide market made such a course impractical. The difficulty of securing the exact sum needed, the hesitancy to make long time inconvertible loans, and the difficulty experienced by the borrowers in securing new loans with which to repay their obligations, have also contributed to the large commissions and high rate of interest.

In the older and established communities, the lack of a standard market, the limited number of property units large enough to allow of the first mortgage being split into units of standard denominations, and the great variation in the character of property securing mortgages were and are still handicaps to many real estate mortgages. With certain properties these disadvantages have been largely overcome by corporations organized for the purpose of issuing bonds, and these will be discussed in greater detail in a following chapter. In fairness, it should be stated that there are a few of the largest cities where mortgage rates and the rates upon other securities possessing the same safety do not differ very much. However, even on the conservative mortgage during the last fifteen years the general average interest rates have increased as on all higher grade securities.¹ Exceptions to this may occur where a small village or town has grown into a city of considerable size and rates have been lowered because of increased security. Comparison of the yield upon real estate mortgages referred to here, of course, is only made with other securities possessing equal safety; otherwise the comparison will not hold.

The large variations in local conditions existing within even one city has always made it difficult to formulate what might be called the general principles underlying real estate mortgages. This, no doubt, accounts for much of the desultory writing upon this subject. But the growing importance of these securities to both small and large investors makes it almost incumbent that a discussion of them be given.

¹See chapters on Market Influences on Security Prices, chaps. x and xi.

The abnormal condition existing in the market at the present writing must not be taken as a criterion for a permanent real estate mortgage market.

*Appraising of Real Estate Values.*¹—The attempt to lay down any rules for the appraising of real estate values is probably the most difficult part of the whole analysis of real estate mortgages. The frequency with which variations from general rules occur, because of local conditions is so puzzling to any one but the expert real estate man, that the layman is apt to draw the conclusion that no rules for the valuation of real estate exist. Errors in judgment due to these variations are apt to be greater in the valuation of real estate than in any form of corporation valuation and also will have a more far-reaching effect. At best, the problem is perplexing, but a great deal of confusion will be avoided in a study of real estate values if the tendency to variation which is implied here, will be borne in mind in reading these pages.

The important questions that should be answered for the investor in an appraisement, are: what possibility is there of appreciation in land values and what effect would such appreciation have on the value of the building? What is the relation of the site value to the character and value of the building? What effect does the present rate of depreciation have on the building? What are the costs of operating the building?

Appreciation of Land.—The purchase of short-term mortgages on the basis of land value is usually not justified. With a long-term mortgage, appreciation of the land value has a perceptible effect on the market price, provided a purchaser can be found. To receive the immediate benefit of this appreciation, however, the income from the building upon the land must have increased sufficiently to capitalize the land at that price. Where it is necessary to hold a mortgage any considerable length of

¹The reader will find R. M. Hurd, *Principles of City Land Values*, and A. P. Bolton, *Building for Profit*, useful texts to read. The author has drawn the larger part of his deductions from interviews with a number of real estate firms in Chicago and New York. For the appraisement of land values such authorities as the following will also be found quite valuable: William E. Davies, *Rules in the Annual Manual and Diary of the Real Estate Board of New York*; Somers' *System* (pamphlet by Manufacturers' Appraisal Company of Cleveland, O.); see also discussions on the Hoffman rule, the Heil rule, and George J. Graiger rule. etc. See also the *Annual Report of the Commissioner of Taxes and Assessments of New York City for 1914*.

time before appreciation takes place, the increased returns resulting therefrom may be offset by the loss suffered in the return on the investment through interest charges, taxes, etc., during the period preceding this increase in value. Mr. R. P. Bolton has charted a series of figures (on a plot of ground in the Bronx, New York City) gathered by Mr. J. C. Davis illustrating this fact. The principle which it illustrates should be applied where anticipated values in land are considered as a part of a security. Mr. Davis' conclusions show that had the owner sold the plot one year after it was purchased, the transaction would have yielded 25 per cent profit. But, as a result of the check due to the panic in 1893, the taxes and interest charges (during the next eight years) offset any increase in profit. The highest point in value was reached in the fourteenth year. Had the owner continued to hold this plot at this price without improvements after the tenth year, all profits would have been consumed in interest and taxes.¹

In property securing long term mortgages, the appreciation of land should not be permitted to offset the depreciation of buildings. If the property itself is held as an investment, this may at times be permissible, though most frequently it is undesirable. The fact is often overlooked that the depreciation of a building begins immediately after its construction. Further, land values are fluctuating and make an uncertain basis upon which to measure depreciation, if a sale of the property were required before the replacement of the building. Ultimately, the income from the building must adjust itself, if it has not already done so, to the average income of neighboring buildings. If no depreciation fund is maintained for the building, the rate of appreciation must be extremely large to offset its depreciation where the cost of the building very greatly exceeds that of the land.

The rule that limits a building to such height as will permit its rental to yield a legitimate interest on land investment, plus the cost of building, has in the past been violated in the erection of some of the tower buildings in New York City.² The

¹R. P. Bolton, *Building for Profit*, pp. 16-18 (Mr. Clarence Davis' figures were published in 1909).

ordinances limiting the height of buildings will somewhat lessen the erection of disproportionately high buildings in central business localities.¹ The erection of buildings of extraordinary height, which might result in the lowering of values of adjoining properties, as was the case with the Equitable Life Insurance building of New York City, is not likely. It was estimated that the property on Pine Street adjoining the Equitable Building was reduced 30 per cent in value at the time of the completion of this building.² There is a tendency in the large cities for certain streets to be monopolized by particular trades. A building not suited to the purposes of the trade predominant in one of these localities is apt to prove a great burden. Residences and office buildings, next to retail dealers' establishments, are more susceptible to environmental influences than wholesale, loft and factory buildings, although certain types of the latter group will be radically affected by the movements of railway terminals. A large modern and well-equipped office building in lower Manhattan for a number of years had difficulty in meeting the interest on its bonds because the building was situated out of the office building area. The type of building best adapted to a site depends, therefore, on the character of the neighboring buildings, the character of the industry in the locality, and the internal movement of population within the city. The rent from the average building in a locality will usually determine for a builder the amount he is warranted in putting into a building and what the operating cost of the structure will be.

The Effect of Structure Values.—The erection of high buildings does not always increase land values. This was true of lower Wall Street and Broadway, New York, for a number of years. The stability of location, in the long run, can be maintained only by a correct ratio between land and buildings. That is, the value of the land should be somewhat near the capitalization of the net rent from the building. Warranted exceptions to this rule are found in a few such districts as Lower

¹R. M. Hurd in his *Principles of City Land Values* (pp. 97-121) gives a number of cases of the lack of the adaptation of buildings to land.

²Franklin Fishler, *Moody Magz.*, vol. xiv (Dec., 1912), p. 427.

Manhattan and the Loop district of Chicago, but normally it is a standard that should rarely be departed from. If the line of traffic is changing rapidly, or the system of taxation permits, cheap buildings may be erected on high-priced land. But in the majority of cases it is questionable whether the investment is returning all it can if the land and building values are not in correct proportion.

Mortgages have been issued in the past on poorly located office buildings in both Chicago and New York, whose return on the total investment netted less than 4 per cent. Now, if the margin of these loans had been larger, the strength of the mortgage's earning power would have been more than relatively strengthened, and the margin of safety to the bondholder would likewise have been materially increased. On the other hand, an unusual location may at times be acceptable, though any considerable variation from the standard of the locality must be well scrutinized to be certain of its justification. Most frequently such variation indicates a lack of proper structural value, and in the long run, results in a proportionate decrease in the return on the total investment. With buildings of cheaper construction, such as can be used for warehouses, where it is not necessary that they be located in particular localities, considerable increase in their land values is to be expected in growing cities. A much larger temporary rate of return must consequently be demanded on these properties.

Houses, tenements, and apartments show much wider variations than any of the commercial buildings. Where residential buildings are erected in densely populated localities and land is approaching the maximum point of appreciation, the cost of the buildings should never very greatly exceed the land value. Prior to the European war and especially a decade ago, apartments forced into existence generally did not exceed, with rare exceptions, from four to five times the value of the land. "Under the present rather abnormal conditions, where the cost of building has advanced very rapidly while the cost of land has remained nearly stationary, the former generally held ratio of five to one is no longer adhered to, and apartment houses now quite normally cost about ten times

the land value. This condition, however, may not continue."¹ When in anticipation of increased population, apartments have been built too large for present demand, they have often proved failures. The disadvantage in erecting buildings whose cost is too great in comparison with the value of the land is that depreciation of the buildings takes place more rapidly than appreciation in the land. This latter statement, of course, again applies to construction under normal conditions.

New buildings in a district have not infrequently largely determined the immediate value of the property already in that locality. This brings real estate into the field of pure speculation, though a number of debenture issues have frequently been placed on properties of this character where the building was done on a large scale. However, very frequently, the anticipation is discounted for too short a period, and prices drop after the first development takes place. To force suburban land on the market before there is a real demand for it is a shortsighted policy, for it brings the cheapest tenants and destroys a possible later development of more profitable building. Again, the higher the rents the more susceptible is the investment to its environment. The best locality for a building is one in which buildings like itself predominate, though a limited number of cheap houses can be built in a good neighborhood and demand a good return.²

In small towns, land values vary so much that it is impossible to lay down any but the most general rules as to what should be the value of the building in proportion to that of the land. While the principle remains the same, the ratio in which it holds true must vary with every locality. It might be safe to lay down a fixed rule that in a certain part of a town the cost of houses should not exceed three times that of the land value, whereas in another part of the same town, it might be necessary to make it five. The latter ratio refers to cottages built in large groups for investment purposes. Large residences, strictly speaking, in small towns or cities, can have no

¹Quoted from letter of George A. Hurd, August 4, 1920.

²R. M. Hurd, *Principles of City Land Values* (1903), chap. viii.

established place in the mortgage investment field. When foreclosure or vacating of the property takes place, the risk of a continued vacancy, as a general rule, is too great to warrant the purchase of these mortgages for investment purposes.

Depreciation of Building.—The importance of depreciation to the mortgage holder increases, both with the increased ratio of building values to the land and with the size of the building. While the depreciation of new buildings should be taken into consideration, it is not of as much importance relatively to the mortgage bondholder as to the owner of the real estate. The common practice is always to extinguish the mortgage long before the structural value of the building is “seriously or materially” depreciated. The greatest danger does not lie in the physical deterioration of the building, but rather in either the movement from the locality of the trade or industry located there, or in the building becoming out of date. The greater danger exists in the latter case, many owners of real estate having been spared great losses only by the rapid appreciation of land values. This has been particularly true of office buildings and apartments.

A new office building has frequently largely emptied old buildings in the same neighborhood, especially if the old buildings have specialized in tenants of one trade or profession. Leases on the old buildings will be taken from the tenants by real estate renting agencies in order to secure desirable tenants for the new building. In both apartment and office buildings, such movements result in a considerable reduction of the rental value of the buildings. And as operating costs usually consume a large portion of the rentals in the more expensive buildings of this type, a fall in gross rentals causes a greater relative drop in net income as the expensiveness of the building increases.

In appraising an old building upon which a mortgage issue is to be placed, the degree to which it can be made to fit modern demands is an essential consideration. Such buildings are frequently allowed to stand idle so long that (even where land values have increased) the property ceases to give

a legitimate rate of interest. As far as structural depreciation is concerned, a sufficient margin should be allowed between the original value and the present depreciated price of the building. The appreciation of land also often more than offsets the depreciation of the building. If the building is old, but its environment still good, the conservative policy is to consider only the land value as a basis for the loan. But if its environment has likewise deteriorated, the property should not be considered under any circumstances by the investor, as it is a purely speculative purchase.

Building as Related to Demand of Locality.—A comparative study of the structural value of buildings is more easily made on the basis of the cubical contents of the buildings than by any other method. Though this method of securing the value is not always absolutely accurate, because of the variations in the details of the buildings, it will be approximately so for given localities. After a given height or expansion in the area covered by the building has been reached, the costs of construction will increase at a more rapid rate. For illustration, the cost of office buildings will increase at a given rate of cost per story up to ten and twelve stories, when the cost will be retarded up to the sixteenth to eighteenth story, and very rapidly increase above that number.

Cost of Operating Property.—Operating statistics from reliable sources are too few to permit of the drawing of any general conclusions. Data from a number of individual buildings have been published, but there are not enough of them to enable the investor to know whether they are representative. Office and apartment buildings, upon which most mortgages and mortgage bonds are placed, have not always been planned with the greatest efficiency in the proportionment of their expenditures. The best way of determining the importance of these variations in operating costs, is to find the ratio of the various operating items separately to gross and net profits and to the value of the total investment, and from these proportions determine whether the special operating charges necessary in rendering these special services are burdensome.

In addition to the tax that is levied on the mortgage-holders

in most states, there is the tax which is levied on the real property. And every mortgage deed should provide for the guarantee of the payment of its tax, together with ample fire insurance to protect the principal of the mortgage. The variation found in this tax is often relatively greater than that found in the net rate of income from the building itself. The unequal burden of taxation placed on real property is such an old story that it scarcely needs to be more than suggested here. Valuation has always been inclusive of land and buildings, and therefore an inequitable tax burden has been placed on improvements.

The amounts entering into fixed charges, maintenance, and special maintenance of equipment, have been more reliably tabulated on New York property than any other city and show a very wide range. So wide is the range in fixed charges in fact, that it is quite safe to assume that this range would include the standard of measurement, except that the third item would be slightly less proportionately on apartment houses in cities outside of New York. The items of special equipments and service devices need to be watched with particular care in certain types of office buildings and modern apartments. Where power, heat, and light equipment, etc., are furnished in a building, the charges increase in a larger relative proportion, though exceptions in certain expenses may exist because of certain peculiar local advantages. For example in Chicago, where the Commonwealth Edison is offering such cheap rates for power and light, these items have been greatly reduced under the New York figures, but Chicago is at a greater advantage than most American cities in this regard. In other cities, however, the operating costs do not approach those of New York as the lower buildings in other cities do not require the larger expenditures of the high buildings in New York:

IN PER CENT OF GROSS INCOME

	Fixed Charges	Maintenance	Special Equipment and Special Services
Warehouses, lofts, etc.	15 to 25	5 to 10	10 to 15
Office buildings	10 to 20	10 to 18	8 to 25
Apartments	8 to 18	18 to 30	10 to 30

Margin of Loan.—The average loan on real estate mortgages should vary both with the size of the city and the district within the city. In cities from 20,000 and up, conservative loans on the average central business property of the city for a long time past have been made safely for 50 per cent of the value of the property. But even in cities over 400,000 the general business custom is not to exceed a loan value of 50 to 60 per cent of the value of the property in the best central business district, except in New York City, and there, there is a growing feeling that the limit for Savings Banks loans of 60 per cent should not be exceeded in any mortgage issue. The only manner in which one can accurately determine what this margin should be is to study the fluctuation of values in the locality over a series of years to determine whether the proposed loan is in danger of passing beyond the margin that is essential for safety.

Taxation of Mortgages.—The majority of the states assess mortgages as personal property, and the courts have sustained the principle that real property and mortgages are distinct objects of taxation. There are, however, a few exceptions to this generally accepted ruling. In California,¹ Colorado, Connecticut, Massachusetts, New Jersey, and Wisconsin, the mortgage is taxed as part of the real estate and the mortgage is exempt. Idaho and Washington exempt all mortgages from taxation. Alabama, Minnesota, and Virginia allow mortgages to be exempted if a privilege tax is paid at the recording of the mortgage. Indiana allows a deduction not exceeding \$700. Pennsylvania has a fixed tax of four mills on all mortgages. Most of the other states tax mortgages as personal property.

While the law of taxing mortgages as personal property still exists, it has never been rigidly enforced, or if enforced, the tax has been shifted by a contract between the mortgager and the mortgagee so that the former pays the tax. If the statute prohibits this shift, as in California and Oregon, the interest

¹California and Oregon separate the two, but allow the mortgagor to deduct the amount of the mortgages. (Sav. Soc. vs. Multomals, 169 U. S. 421.)

rate has been increased.¹ This enforcement of a specific mortgage tax is illustrated in the New York law, which was repealed on the conclusive evidence shown by Mr. Lawson Purdy that interest rates were increased more than the specific tax on mortgages.² "The general rule which explains the shifting of a mortgage tax to the borrower," further states Professor Seligman, "may be modified by such considerations as, (1) that the tax is unusually low, or (2) that the normal rate of interest on mortgages is exceptionally high, or (3) that the demand for capital is inordinately keen, or (4) that the stability of land values is not sufficiently assured to attract an influx of capital from the outside and thus to affect the supply."³

As long known, taxation on both real estate and mortgages may cause serious interference with the improvement of city property. If rental and taxes move forward at the same rate or taxes move at a faster rate, improvements will be permanently checked. But this is a problem involving the landowner directly, and a factor only indirectly affecting the mortgageholder in its influence on all land values.

Convertibility and Hypothecation.—Mortgages, as a class, lack the convertibility possessed by bonds. The impossibility of standardization, as with bonds, already referred to, will always prevent even with high-class mortgages, the rapidity of exchange enjoyed by bonds of a well-established corporation. During periods of severe depression the value of properties, especially those used for particular purposes and suburban property, is subject to extreme relapses in value. On the other hand, in recent years the phenomenal rise in values has saved many hypothecators. This lack of fluidity makes mortgages correspondingly less desirable to the banker when they are used for purposes of hypothecation. It is also necessary that the banker ascertain for himself the security of title and other safeguards of the investment, except where he is willing to accept the issues of a mortgage banking house.

Denomination, Maturity and Yield.—The common objections

¹R. A. Campbell, *Mortgage Taxation* (Wis. Pub. Library, p. 60).

²Lawson Purdy, *Mortgage Taxation and Interest Rates* (1906).

³R. A. Seligman, *Shifting and Incidence of Taxation* (1910), pp. 334-335.

made by bond houses to the purchases of mortgages are their denominations and maturities. There are no standardized issues, and every time a borrower enters the market, an investor must be found who is willing to invest the specific amount of the mortgage offered. As the mortgages become larger, the number of investors decrease at an increasingly rapid ratio, as investors of large amounts are mindful of the necessity of the distribution of risks. If a single investor cannot be found, it is necessary for the mortgagor to split his mortgage into two or more mortgages, and this involves extra cost. When the mortgage has reached a sufficient amount, such as on apartment houses, the difficulty is simplified as in a railroad mortgage by issuing bonds against the mortgage and splitting up these bonds into desired denominations. But this takes us outside of the straight mortgage as such.

With the increase of local capital, the difficulties of readily disposing of mortgages at all times are becoming more and more minimized. A number of local banks in the Middle West and Western States, where surplus funds are now accumulating, are disposing of these mortgages of larger amounts to several participating investors. The popular demand of small investors for \$500 investments is steadily growing; and with this increasing market, local banks of small towns and cities will participate more actively than ever in the business.

The duration of the average mortgage is even more objectionable than the denomination. An investor is desirous of placing his funds into more or less permanent form, but as mortgages mature in five to ten years, more frequently five, the investor is constantly inconvenienced in looking for new mortgages for the specific sum he has to invest. And unless he is able to investigate titles, etc., each new investment involves a considerable expenditure that decreases the net yield.

Where the price level is moving steadily upward, the short duration has the advantage over the long-term security, as the interest rates in a locality and the slowness of interest rates in adjusting themselves to changing price levels, often prevent any advantages from accruing to the investor. Where there is a falling of the price level, and a rapid readjustment of rates, the mortgage-holder is a loser.

CHAPTER XXIX

REAL ESTATE BONDS

As pointed out in the previous chapter the difficulty of securing small unit investments, which tends to offset the advantages of real estate mortgages especially to the small individual investor, has been overcome by the formation of real estate investment corporations and real estate bond underwriting firms.¹ This has been made possible by the large increase in the value of urban property which now warrants the erection of larger single structures on one site. These structures have become both so numerous and so large that the individual capitalist is no longer able to finance them. And thus a field has been created for the real estate investment company.

The common practice of these companies has been to build or purchase a large property and dispose of it as soon as a profitable market is offered. The business of the company is financed by the issuing of bonds. Either the bond issue is placed on each individual property or the bond is issued on the basis of a single mortgage. The company retains the privilege of withdrawing a certain proportion of the property and substituting other property of equal value. The permanent holding of property by these companies is an innovation, but one which offers great possibilities for the future. A decided move in this direction will go far toward the separation of the purely speculative and investment real estate.

The real estate bond investment houses occupy the same position toward the financing of real estate properties as do the underwriters of any other corporate securities. They either purchase the mortgages outright and advance the money, or

¹For Legal Savings, Appraising of Real Estate, Title, Increase in Values of Mortgages, Title and Taxation, see chapter on Real Estate Mortgages.

they assume the responsibility of selling the bonds for a company likewise secured by a mortgage deposited with a trustee. These bonds will be the subject of discussion in this chapter. As the principles which govern the valuation of the real estate mortgage upon which the bonds are placed have already been analyzed in the previous chapter, it will not be necessary to repeat the discussion.

Classification.—The three types of real estate mortgage bonds commonly used are: the real estate mortgage bond, the debenture bond, and the leasehold mortgage bond. The certificates of partial payment and guarantee mortgage bonds are only a variation of one of these three types.

Real Estate Mortgage Bonds.—The real estate mortgage bonds are secured by mortgages or trust conveyances of real estate. They may be either a first or junior lien, and are secured by a definite mortgage or mortgages which are placed with a trustee. These bonds are then usually issued in series of convenient denominations which will make them quickly saleable by the banker underwriting the issue. The method of selling and the general issuance problems are no different from those found in other forms of corporate securities underwritten by an investment banker. The value of these bonds is determined by exactly the same methods as those already elaborated in the preceding chapter.

When the real estate mortgage bonds are sold against a mortgage which a real estate investment company has the right to replace with other mortgages, these bonds are quite different from the type referred to above. Bonds secured by mortgages of this character are frequently called collateral trust mortgage bonds, though this name is frequently incorrectly applied to bonds of the former type. It would be well if the name collateral trust mortgage bond could be limited to bonds of the latter type so that they could be correctly distinguished through their nomenclature.

The privilege allowed the investment company of substituting other mortgages for the mortgages originally securing the bonds, permits it to take advantage of a desirable profit in any particular part of its holdings and in purchasing other parcels

of real estate. This may, of course, prove a danger if the company's officials are inclined to speculate.

The safety of these bonds is determined not only by the ratio of the bonds to their collateral but by the amount of the mortgages to the value of the property, and their rate of yield. It can be generally assumed that an increasing yield is an indication of a relatively increasing weakness in the stability of the property securing the loan. While this narrowing of the margin yields a larger net profit to the investment company issuing the bonds on the mortgages, it generally lessens to an equal degree the value of the security to the investor. A guarantee of the principal and interest then is highly desirable, but this will be discussed under the special topic of guaranteed bonds, as guarantees are also applicable to the other classes of real estate bonds.

Debenture Mortgage Bonds.—These bonds possess the characteristics already attributed to debentures, usually being a general lien upon the assets of the company. These assets include both property and mortgages owned, the proportion of each varying with different companies, but those proportions are not so important to the investor as a specific knowledge of the character of the assets themselves.

The prospectuses and bond circulars of many of these companies leave the impression that these bonds are first claims upon stipulated assets. These prospectuses do not reveal all the facts; the bonds are a lien upon all assets, but not the only lien. A very heavy mortgage may already exist on the property and consequently the bond security may be almost valueless. If a prior mortgage or mortgages are outstanding on the property owned, there should be a sufficient margin to safeguard the interests of the bondholder, as these mortgages are prior liens to the claims of the bondholders. If the amounts of the mortgages and bonds are both large, the interest charges are an abnormal burden, so that it will require a very large income to insure absolute safety of interest payments. Such a condition of liens, with few exceptions, must be considered precarious by the investor and the issue be wholly disregarded.

The practice of a number of these companies at their incep-

tion has been to control a valuable site, which, as the company has grown, the officials have withdrawn, substituting, therefore, a less valuable piece of property, always valued by the company's own appraisers at the same price as the original property. Others have acquired tracts of land in outlying districts which have had no appreciable growth for a number of years, and in which the promise of development is not soon likely to be fulfilled. The great majority of American cities are not as well established as the European cities in their environs, and there is always the possibility that the direction of their growth will be changed or one of the outlying areas will be settled long before another one has fairly started to develop. Speculative companies of this character usually fail under the first strain of the market. A few years ago a communication came into the author's office from a woman who had been left a sufficient amount to provide her with a modest but comfortable income. The letter asked whether she should invest the total amount in the debenture bonds of a certain real estate company. She further desired to telegraph an immediate acceptance of the purchase, as the company in a personal letter answering her request for information announced that the amount of bonds left to be sold was just equal to her total capital. This company, in addition to the 6 per cent interest on its bonds, offered one-half of its net profits to the bond holders. She had no further evidence concerning the company than the falsified statements contained in the advertising circular. In less than a year the company failed. These companies are spoken of here because so many people have unsuspectingly been led into buying these securities thinking that they were purchasing an investment. Fortunately there are not as many of these companies now as formerly, and because of more stringent laws, it is more difficult for them to operate.

On the other hand, some of the very strongest and oldest of our real estate companies issue debenture bonds. But the location and stability of their properties and the ratio of funded liability are such that large margins secure the safety of principal and interest payments. With such evidence of stability these securities can well be classified as investments. Further,

the security of these companies is such that they are never forced in a strained market to make great sacrifices in order to meet maturing obligations and interest payments. Whether these bonds are speculative debenture bonds, or investment debenture bonds, is determined by which of the above policies is pursued by the company issuing them.

The company which makes the guarantee should be entirely independent of the company issuing either the bonds or the mortgages. Not infrequently, the title of the bonds and that of the underlying mortgage will be guaranteed by different but inter-related companies controlled by the same group of individuals. It would greatly add to the value of the security if these guarantees were made by independent companies controlled by different interests. If the issuing companies are weak, it can easily be seen that in a strained market this interlocking of control has a cumulative effect upon the stability of the bonds. The usual charge for this guarantee is one-half of one per cent. The company generally guarantees to pay the interest on each interest paying date, but does not always guarantee the principal on the date of maturity. It provides for a lapse of from six to eighteen months, after the maker has defaulted, in which to meet its obligation. This is a detail that is often overlooked by the purchaser of these bonds, and well illustrates the necessity of a close scrutiny of the mortgage.

The same distinctions must be adhered to in the acceptance of the value of guaranteeing companies as with other corporations. One of the oldest and largest of the New York guarantee mortgage companies has been in existence for more than thirty years. This company, however, has confined its loans to New York City, but for this company to have successfully weathered the depression following the panic of 1893, as well as the fifteen year decline in real estate prior to the present rise in real estate value, would seem an ample test of its strength. With the record of an experience of this character, together with a proper ratio between the capital, surplus and undivided profits possessed by the company to the value of

the guaranteed mortgages, we have a sound basis upon which to judge the value of the guarantee.

The amount of the mortgages which a company can guarantee should be closely observed. The aggregate amount of mortgages guaranteed by some companies is limited by their charter and by-laws to twenty times their capital. (The comparison here of capital should include capital, surplus and undivided profits, as already stated.) This provision has been borrowed from some of the European mortgage companies which have had a long and unusual experience. A number of the American companies, however, have placed no limit on their guarantees and in a number of cases they are apparently guaranteeing altogether too large an aggregate amount of mortgages. For example, if a company is guaranteeing a total of \$100,000,000 mortgages on a capital surplus and undivided profits of \$3,000,000 to \$5,000,000, it will readily be seen that if anything really happened to real estate values in the localities in which these companies are operating, the value of the guarantee would not amount to much. If the mortgage guarantee companies have to purchase the less desirable mortgages in order to secure the gross rate of interest which it is necessary for them to obtain, the weakness of the guarantee is apparent. The savings banks and insurance companies are usually ready to take the highest grade of mortgages at less than some of the guarantee companies could afford to pay. Consequently these particular companies are forced to take issues that are undesirable from a purely investment point of view in order to make a profit. Furthermore, each company as a rule operates in only one city, and its risks are, therefore, not spread out in different parts of the country, but only in different parts of the same city. The worth of a large number of these guarantee companies as a protection to the investor has been very much overestimated.

Leasehold Mortgage Bonds.—Leasehold mortgage bonds with a few exceptions have had neither a long nor enviable record in this country. Leasehold mortgage loans are prohibited by law in most European countries. The unhappy experience of more than a quarter of a century ago of insurance

companies and mortgage bankers led to the rejection of leasehold issues by these institutions. Certain exceptions to this exist, as in Chicago in such centrally located business property under the old leases, where the land value has had a more than normal rise in value. This is the exception and not the rule, and conservative mortgage bankers everywhere are opposed to this form of security.

“The mortgage on a leasehold is in the nature of a second mortgage, the annual charge of ground rent under a leasehold corresponding to the interest paid on the first mortgage.” If the lease happens to be a recent one, the full value is absorbed in the ground rent and the building is the security. Where a marked rise has taken place upon a central business property that has but a small prior lien and the lease is not subject to revaluation, such a bond would be valuable security. But again, this is the rare exception and not the rule.

The method of issuing these bonds does not vary from that employed for the issuance of railroad bonds. An individual or corporation leases a locality in the business area of a large city, but does not have sufficient funds to finance the building project. If the proposed builder can show to the underwriter that the new or improved building will yield a sufficient income from the rents to meet the charges of the lease and interest charges upon the proposed notes, mortgages, or mortgage bond issues, the underwriter will agree either to sell or underwrite an issue whose security is based upon the lease of the property held by the proposed builder. In the issuance of the bonds upon a lease, this lease is assigned to a trustee as security for the bond issue. The lease must, of course, extend a considerable number of years beyond the maturity of the bonds.

Installment Payment Plans.—Certain real estate investment companies have originated various installment plans to induce people with small incomes to invest. As the business is all done by magazine advertising, the cost of issuance is materially reduced and affords ample profit to the company. There are a great many variations in the details of these various plans, though the general principles are much the same.

When a company called "A" receives the first payment, which may range from \$5.00 to \$25.00, it purchases from an affiliated company "B" a bond for, say, \$200.00 and holds it for the period during which the installments are being paid. For the amount paid in, the investor "A" receives a certificate or receipt which is credited with interest every six months. If the payments are to be made monthly, at say the rate of ten dollars a payment, at the end of nineteen months the \$200.00 would have been paid in by the investor for the bond, and company "A" would now exchange the certificates held by the investor, for the bond it has held of the issuing company "B." This bond runs for a definite period ranging from five to twenty-five years and draws interest semi-annually.¹

Where the transactions are carried on by one company, the certificates are issued directly to the investor and exchanged for bonds when all payments have been made. These payments can be on an annual, semi-annual or quarterly basis. The rates of a \$1,000 bond as given in the circulars of one company, are as follows:

Maturing in	Annual	Semi- Annual	Quarterly	Total Amount of Annual Payments	Maturity Value
10 Years	\$71.57	36.32	\$18.30	\$715.70	\$1,000.00
15 Years	40.53	20.57	10.36	607.95	1,000.00
20 Years	25.65	13.02	6.56	513.00	1,000.00

Trust Agreement of the Company.—To insure the conservativeness of the mortgage bond company issuing the bonds, the following requirements should be included: (1) that the mortgage deposited shall always be a first lien on city property of a minimum size; (2) that the margin of loans in cities of certain sizes shall be stated; (3) that the percentage of mortgages issued in cities under one million, shall not exceed a given percentage of the total bonds issued by the company; (4) that a single bond issue shall not be allowed to exceed a given percentage of the capital stock and surplus of the company; (5) that the appraisals shall be adequately made; (6) that com-

¹This plan is based on suggestions taken from the one used by the Title Guarantee and Trust Company of New York City.

panies operating in city real estate bonds shall not operate in farm mortgage bonds or vice versa; (7) that no real estate must be acquired except from foreclosure and must be disposed of within a given time; (8) that the taxes will be assumed by the borrower; (9) that a two-thirds vote of the trustees will be required before underwriting any bond issue; and (10) that the company shall guarantee and shall take all necessary action in the guarding of the investors' rights and interests.

The statutes regulating these companies in the United States are still in need of very large revision. The majority of these companies are organized under the general banking laws of the state which do not adequately protect the investor's interests in mortgage securities. Modification of the European statutes, which are extremely simple in form, but far reaching in the protection they offer to the investor, will undoubtedly sooner or later be adopted in this country.

Convertibility.—Real estate bonds will never possess the degree of convertibility enjoyed by public utilities and municipal bonds, though they will unquestionably have greater negotiability with the wider use and distribution of these securities. Real estate securities under the present form of issuing on relatively small local property holdings, as compared to public utilities, cannot have all the ideal elements of a perfect investment possessed by a bond on the highest class railroad. Each individual piece of property, whether in New York City, New York, or Madison, Wisconsin, or Cheyenne, Wyoming, or Los Angeles, California, is affected by conditions peculiar to that particular locality. For a New York investor with \$5,000, to investigate a bond offered on a Cheyenne property, or a Los Angeles investor with a similar amount to investigate a Madison property would not be warranted because of the costs involved. If the investor, on the other hand, is purchasing a railroad security, not only has he a standardized report from which to obtain his basic information, but the other general information needed to make an analysis complete can be procured in any important city in the country. The issue is large, and consequently the market is broader.

As the large real estate bond-banks in the principal cities increase in number, they will to a measure overcome the difficulties of the market problem for the local real estate bonds. To what extent they will be able to broaden the market nationally for these bonds is still problematic. A few of the large real estate bond bankers have begun to establish branches throughout the important cities of the country, and it is only in this way that the problem can be solved. But although this develops a broader market for the individual banker's own securities, it does not follow that a broader market is being created for the bonds of other real estate bond-bankers. And it is only when one banker is ready and willing at any time to purchase the securities of another banker that a broad national market such as is possessed by active investment railroad bonds will be created.

Experience has shown that there is a clogging of the market and a lack of ready negotiability of these securities in a strained market. This condition is more particularly true of debenture bonds as a class than of real estate bonds, though the strength of the issuing company and the property underlying the securities may often enable the debenture bonds to maintain locally a comparatively strong market. As long as the security exists and the borrower is able to pay at maturity, the investor to whom convertibility or the hypothecation privilege is not necessary, need not give much consideration to the latter features.

In order to provide against the objections raised in the previous paragraph, a number of real estate companies issuing debentures allow the holder to redeem his bond after a stipulated period from the time of purchase. But where this privilege is taken advantage of, only 3 per cent interest is allowed for the period during which the bond has been held. This nullifies any advantage that the redemption privilege would have. Any large demand for redemption in a period of strain might, however, prove the undoing of the company, for it would be forced to dispose of its property in order to secure funds. If a large part of its assets were in mortgages, they could not be disposed of in such a period, and redemption would become impossible.

Other Miscellaneous Characteristics.—Where mortgages and mortgage bonds are exempt from taxation, they command a relatively much better market. The most frequent nominal rate has been 7 per cent, though much higher actual rates are reported where large commissions are charged. Because of the effort to appeal to the small investor, a very large number of real estate bonds are issued in small denominations. The denominations are \$100, \$200, \$500, \$1,000, \$5,000, \$10,000 and multiples of \$5,000. The duration of these bonds ranges from five to twenty-five years, though it averages ten to fifteen years. The majority are callable after two to five years from the date of issue, at a very slight premium, and a number of companies call a considerable number of their issues before maturity.

The limitation of the market prevents any wide fluctuation in price. When the market for real estate securities collapses, as in 1907, the price has often been automatically checked at a certain level because of the lack of bidders. In a well secured issue, however, this failure to respond to extreme market changes is of no consequence to an investor purchasing to hold till maturity.

CHAPTER XXX

FARM MORTGAGES AND FEDERAL FARM LOAN BONDS

History of Development.—The rapid development in the West and North after 1865, brought on a nation-wide speculation in land. As a consequence, land values were greatly inflated. These inflated values, which gave additional margins to borrow upon, induced many investors to purchase more land and to make more improvements with hope of additional profits. This movement continued through the decade of 1879 to 1890.¹ Loan brokerage companies were organized in the East and West to place the loans, and huge commissions were reaped at both ends. Investors, attracted by the high interest rates and the reports of unlimited wealth in the West, offered more money at times than could be placed. Agents would induce individuals to make loans on worthless lands for the sake of the fees. Clerks who represented agents in the East and did not know “sand hill pastures” from “bottom land,” would take charge of making these loans and appraising the lands. Many companies held the original mortgages and issued debentures which were purchased as eagerly as were the mortgages. And to encourage further purchases, the mortgage brokers would guarantee loans.

Overproduction was followed by a collapse in prices, and Western Kansas and Nebraska at the same time suffered from hot winds for several seasons. In five years, more than a quarter of a million of the inhabitants of these states moved out,

¹Interesting references to the indebtedness and value of farms in about 1890 are to be found in the *United States Census in the Special Report on Farms and Homes: Proprietorship Indebtedness*. See also James Willis Gleed, *Forum*, ix (March, 1890), pp. 94-105.

For a good general discussion of Farm Mortgages see Kingman Nott Robins, *Hand Book on Farm Mortgages*, Doubleday, Page & Co. (1916), pp. 271.

leaving heavily mortgaged farms. The mortgages were far in excess of the value of the farm lands and the investors came back upon the companies guaranteeing these mortgages, which in turn passed into receivers' hands. But those farms, of which a large number were of poor quality, were of little worth to European and Eastern investors who in many cases did not even know their location. Millions of dollars were lost, and as a result, the sale of farm mortgages to individual investors suffered severely for a number of years. But with the recovery at the close of the previous century the sale of farm mortgages developed on a rapid and sound basis.

The rapid recovery and increase in production after 1896, together with the subdivision of large tracts into small holdings in the South and far West, made the very large increase of mortgage indebtedness possible. The geographical distribution of these mortgages has been somewhat irregular. The dependence of the Southern farmer on personal credit and his aversion to fixed debt, the lack of standardization, the methods of tenancy, the continued ownership of large tracts, the infrequency of transfer, low land values, large homestead exemptions, and inadequate laws for the protection of the creditor—all these have resulted in a very limited use of mortgage debts in the South. The Southern Central States, for example, have less than 10 per cent of their farms mortgaged, while the Western Central States have 45 to 50 per cent mortgaged. Changes in the South, however, have been rapidly taking place in the transfer, size of tracts, and methods of cultivation, though homestead exemptions and laws protecting the debtors have not been materially changed. These have resulted in a great increase in the number of tracts mortgaged, but the total number is still small. For the United States as a whole, it is estimated that the amount of farm mortgages now outstanding is approximately \$5,000,000,000 with property assessed at \$75,000,000,000.¹

Increase in Land Values.—Farm land values as a class have increased more rapidly in many sections of the United States

¹O. M. Corwin, Vice-President of Wells-Dickey Co., Minneapolis, in an address before the *Minnesota State Convention of Realty Owners and Dealers Association*, St. Paul, January 15, 1920.

than city land values. This increase must be largely assigned to the active buying and selling of farm property and the increase in prices, which has affected farm products more than any other class of production. The chief gains in farm values, as would be expected, have been in the West. The greater part of this increase, however, contrary to the common belief, has not been in the value of new improved acreage.¹ On the basis of this increase in the value of farms, the claim is made in the advertising literature of many mortgage banks, that the equity of the farmer is greater now than in 1890, as the mortgage indebtedness has decreased to a small fraction. But the value of a farm as a going concern must be measured, like that of any business corporation, on the basis of its net profits.

An increased equity without increased income will give the farmer a gain if he wishes to sell, but the gain from the sale is of no ultimate value if the general price level has advanced. A purchaser of the land is worse off with this increase in land values, if the income from the land has not relatively increased, because the burden of the funded debt has become relatively greater. At the present price of land, the purchase of small land holdings in certain localities of the United States has become an almost impossible undertaking, if it is necessary to resort to borrowing and only short term loans are to be had.

Where a long termed mortgage was issued at the beginning of, or prior to, this rise in land values, and increased security has accrued to the mortgage holder. The only advantage to the owner of this mortgage, if he retains it, is the increased security; and, if he wishes to sell, a possible profit, provided the mortgage was originally issued at a favorable rate. To a short term mortgage, a very slight, if any advantage has accrued.

Location of Distribution.—The distribution of farm mortgages (the reader should bear in mind that mortgages and not bonds are discussed in this chapter unless specifically men-

¹For further information on this topic see George K. Holmes, *Yearbook of the Department of Agriculture* (U. S., 1905), pp. 511-521.

L. W. Ellis, Bulletin 212, *Bureau of Plant Industry, Department of Agriculture* (U. S., pp. 12-13).

²Richard T. Ely, *Outline of Economics* (Capitalization of Rent), pp. 359-360 (1909).

tioned) with the exception of the purchases made by large mortgage banks and insurance companies, is still largely localized. The insurance companies, which are by far the largest single class of purchasers, hold an amount equal to about 20 per cent of that held by the banks.² The distribution of their purchases, however, is in very definite areas.

Mr. George T. Wight, in an address on the investment of life insurance companies, stated: "These figures show that the radical trend toward real estate mortgage loans that stood as the dominant feature of the period from 1904 to 1914 is still noticeable in the experience of the companies in 1915 and 1916.² The mortgage loans increased from \$670,000,000 in 1904 to \$1,700,000,000 in 1914, or more than 150 per cent. Where in 1904 they amounted to 27 per cent of all assets they jumped to 34½ per cent in 1914. Two years later we find them about \$190,000,000 more, although there is a very slight downward

¹Robert Lynn Cox, *Report to the Ninth Annual Meeting of the Association of Life Insurance Presidents*, December 9, 1915, vol. ix. The last United States Census gave the holdings of farm mortgages by Life Insurance Companies as 37½ per cent of the total.

²In referring to the amount of farm mortgages held by life insurance companies, Mr. Wight states, "It is, of course, more than a mere coincidence that over 95 per cent of the total life insurance farm mortgages and nearly 95 per cent of the increase shown in 1916 over 1914 and 94 per cent of new of 1917 are located in this group of states containing 50 per cent of the area, 47 per cent of the population, 48.8 per cent of the wealth of the country as estimated by the United States Census Bureau."

The states included in the above percentages, together with the amounts of mortgages held by Life Insurance Companies in 1916, are as follows:

State	Amount of Mortgages	State	Amount of Mortgages
Iowa	\$195,000,000	Ohio	\$19,000,000
Missouri	73,000,000	Georgia	19,000,000
Kansas	70,000,000	North Dakota	18,000,000
Nebraska	65,000,000	Tennessee	13,000,000
Indiana	56,000,000	California	12,000,000
Illinois	55,000,000	Kentucky	10,000,000
Texas	49,000,000	So. Carolina. (nearly 6)	5,000,000
Minnesota	43,000,000	Montana	5,000,000
South Dakota	41,000,000	Arkansas	5,000,000
Oklahoma	31,000,000		

(George T. Wight, *Life Insurance Farm Loan Investments in War Time, A Report Transmitted to Life Insurance Companies of the United States*, August 26, 1918, by Mr. Wight as Secretary and Manager of the Association of Life Insurance Presidents, pp. 7-9.)

fluctuation in their ratio to total assets, for the twelve years, in all we find the rate of increase in the case of mortgages (182 per cent) is much larger than the rate of increase (116 per cent) for corporation bonds."¹ An examination of the offerings made by the conservative mortgage bankers will show that their offerings also are confined to the same areas in which insurance companies make their purchases.

A number of mortgage bankers are beginning to advertise widely through the popular magazines, and are building up a considerable clientele, but the amounts marketed by these banks are small compared to the purchases of the insurance companies. These offerings are sold to small investors and consequently total very slowly into large amounts. It should be noted in passing, that considerable discrimination should be used in choosing from among these advertisers, for there are other than conservative bankers in the list.

The fact, however, remains that the largest number of these obligations are distributed within less than one hundred miles of the mortgagor. The small units and the comparatively high cost of obtaining reliable information as to their security, limits these offerings to distribution in local areas, and this must continue for a considerable length of time in the majority of localities. The care which the insurance companies and conservative bankers, in order to insure safety, have exercised in the examination of these localities should be the basis used by the investor for the first general selection of these securities.

Classes of Farm Securities.—The classes of farm mortgages are identical to those described under Real Estate Mortgages. Excepting for the Federal Bonds discussed later the issuance of bonds on farm mortgages is as yet very limited in the United States. The short maturity of the farm mortgage under the private company issuance has been a drawback to the development of bond issues. A few companies are now issuing the debenture and collateral and trust mortgages. As in real estate debentures, certificates of small amounts are issued and exchanged for debentures in denominations of \$100, \$200, and

¹*Ibid.*, p. 3.

\$500. In the large mortgages, certificates of varying denominations are issued against a mortgage deposited with a trustee. Guarantees are frequently made when these mortgages are assigned to the purchaser, but the value of these vary as is the case of all such guarantees, with the stability and integrity of the underwriting company. A few companies are making issues of Amortization Mortgages or Bonds, which are copied after similar issues made in Europe. The loans are repaid to the underwriting company in small semi-annual payments, these payments including both the interest and a stipulated proportion of the principal, which amounts depend on the term that the mortgage has to run. In Europe, many of these mortgages run for twenty-five years. If a loan, for example, were issued for \$1,000 for 30 years at 5 per cent per annum, a payment of \$35.00 every six months for thirty years would completely exterminate the debt. This plan has also been copied in the Federal Farm Loan Act which is discussed later. The instrument, however, purchased by the investor is a bond secured by the farm mortgage and not the farm-mortgage itself, to which the discussion of this chapter is devoted.

Bonds or certificates under this plan are issued by the underwriting company against these mortgages. The usual regulations covering the issuance of these bonds are the same as for the ordinary debenture bonds. The underwriters agree that they will always keep a certain amount of mortgages with the trustee in excess of the bonds issued against the mortgages. The borrower usually has the privilege of anticipating any number of the payments that he desires, in addition to his regular payments.

Physical Appraisement.—"Public opinion," states one well known mortgage banker of the Middle West, "swings from one extreme to another." It is not many years since farm mortgages were in exceedingly bad repute, not because there was anything inherently hazardous in a good farm mortgage, but because the demand for them led the investors to place their money in semi-arid portions of the West, where lack of rainfall made it impossible to grow crops successfully each year. At the present time the public has swung to the other extreme,

and little, if any, criticism is ever heard of this form of investment—a condition which certainly must often result in the safety of these securities being accepted without sufficient investigation.

As much expert skill is necessary to be able to judge the security underlying farm mortgages as to judge the security of any other form of investment, and the valuation should be made by an appraiser independent of the agency issuing the mortgage. A locality where loans are highly desirable and even sought after may adjoin a locality in which few, if any, good loans could be procured. Farming, it must not be forgotten, is a business, and in order to carry a loan to a successful maturity it is as essential for the farmer to possess business acumen and managerial ability as it is for the executive officer of a corporation to have these qualities. Though land is imperishable and cannot vanish, something more than imperishability is required to insure its making a return on funds invested in it.

Fundamentally, the farm must not only have the potential qualities for productiveness but must actually be producing to be a valuable basis for a security. While an investor is constantly mindful of the quality of the potential security, he is equally cognizant of the fact that it is not profitable to foreclose and that valuation must be based on a going concern. A physical appraisal of a farm must include: (1) the number of acres and the general usage to which each part of the land is put; the acreage fenced and if irrigated the character of the water-rights; (2) the character of the soil, subsoil, and drainage; (3) the size, kinds, and value of the farm equipment, buildings, and other improvements; (4) the value of livestock and farm equipments; (5) the character of the roads and distance to the nearest railroad transportation; (6) a financial statement of the borrower showing his assets and liabilities; (7) the general character of the neighborhood; (8) the value of the land exclusive of the buildings.¹

A statement of the character of the borrower should likewise be included. The moral risk is larger here than in any

¹Pearsons Taft Land Credit Company (*Pamphlet on Farm Mortgages*), pp. 12 and 27.

other type of security, as the surety of production is dependent upon one individual. The purchaser of the mortgage must satisfy himself that the borrower has sufficient interest in the property to continue its improvement in the interim of making and paying the loan, as this will insure the equity behind the mortgage from decreasing.

Other Miscellaneous Factors.—Farm mortgage loans range from 20 to 50 per cent of the value of the land, though a relatively small number are as high as 50 per cent; and for a conservative investment it is questionable whether a loan on the average farm should ever be above this amount, though certain authorities place the loaning value on the best farms as high as two-thirds of their value. A larger margin than 50 per cent is, however, desirable for the conservative investment. Where buildings constitute a large part of the security offered, a greater margin should be allowed than where only land is the security, and ample insurance should be provided by the borrower. As a rule, it is the better part of conservatism not to include the value of the buildings in the determination of the margins for loans. Locality, distance to market, soils, climate, etc., all enter into the determination of these margins of safety.

The long existence of mortgage loans in Europe has developed a more detailed classification of property. The loans on vineyards never exceed $33\frac{1}{3}$ per cent on average farms, and 50 per cent on good farms, though many loan associations frequently allow as high as 75 per cent on exceptional property. Too much weight should not, however, be given to European practice, as a basis for loans in the United States. The methods of intensive cultivation and the character of farm organization used there are foreign to this country except for truck gardens in the vicinity of large cities. In Europe farm communities are long established and not subject, as in the United States, to the constant readjustment necessitated by the division of large tracts of land.

The mortgage, in addition to a detailed list and valuation of all property conveyed under the instrument and the declaration of the right in ownership of conveyance, should provide that the buildings and other improvements be kept in good

repair, and be insured for an agreed sum by a company approved by the mortgagee. In case of loss, the mortgagor should agree to use indemnity in rebuilding or repairing damages. Further provisions should make it incumbent upon the mortgagor to pay all attorney's fees, cost of all litigation incurred in collecting or protecting the loan from foreclosure, all taxes and assessments, and likewise all sums advanced by the mortgagor for any of the aforementioned purposes. And if a default is made in any of the above agreements or interest payments, the mortgage shall be declared defaulted.

The most common and greatest objection to farm mortgages, as to real estate in general, is the lack of convertibility possessed by bonds. The higher class of farm mortgages, however, during the panic of 1907 were among the small number of securities which realized full value upon resale without the loss of principal. A few of the best companies sustained the market for their own mortgages by a repurchase of them whenever necessary.

During normal periods, with the exception of the autumn season, farm mortgages can usually be hypothecated with local banks. Banks, however, outside of the locality in which a mortgage is issued are reluctant to make a loan on it excepting where the individual or organization making the loan commands considerable resources. With the modification in the new national banking law, the general credit situation for farmers seeking temporary loans should be improved.¹ And with the eventual perfecting of this law, this objection to farm loans should be greatly modified and the objections which now exist largely removed.

The disadvantage of the short termed mortgage has already been discussed under a previous heading and need not be repeated. The average maturity of mortgages in this country is five years, though a few are over ten years. This is a disadvan-

¹The Federal Reserve Act, Sec. 24 (Approved December 23, 1913), and as amended by act approved Sept. 7, 1916 (39 Stat., 752 Chap. 461).

Also under Sec. 13 of this act, as amended, all notes, drafts and bills of exchange drawn or issued for agricultural purposes or based on livestock may be discounted for a period of six months or less. See topic on Federal Farm Loan Act.

tage to the farmer, for if the loan is large it prevents him from paying off the loan from the profits on the farm during or at the end of the period of the loan. This necessitates the renewal of the loan, with a consequent increase in the costs to both the farmer and the investor. Where mortgages are longer than the average maturity, there is an increasing tendency to allow the mortgage to be retired by a serial method of payment.

No standard denominations exist in farm mortgages. Popular demand for \$500 denominations, as in city property mortgages, has increased the practice of dividing up the mortgages and issuing certificates against a specially deposited mortgage.

Period of Redemption After Foreclosure.—The court decisions bearing upon the period in which the mortgagor has the right to redeem the land after the mortgagee has taken possession, are not clear. In most jurisdictions, the right to redeem terminates, as in New York, when the foreclosure sale is completed.¹ The right of redemption after forfeiture is provided for in some states by statute; these allow a varying range of duration which, through possible extension, may be drawn out, as has been the case in Alabama for two years. The courts, as for example in Illinois (Anderson vs. Olingdon), have allowed extension periods of from six months to two years.²

The provisions demanding that the period of time allowed to elapse between the foreclosure of the property and its sale shall be sufficient to permit the mortgagor to redeem it, developed in the agricultural states to prevent farms from passing into the hands of creditors where the non-payment of the debt, when due, was owing to crop failure. This prevented outsiders from buying up foreclosures and the mortgagee from improving the property. Where the mortgagor is allowed to remain in control during the period of redemption allowed by the statute, losses to the investors are increased.³ Some states,

¹Stevens vs. Theaters (1913), Ch. 857; also see L. A. Jones, *Treatise on the Law of Mortgages* (Ed. 1908), Section 608.

²C. H. Wiltsie, *A Treatise on the Foreclosing of Mortgages*. (Mortgage Redemption, Ch. Prefaced by J. M. Kerr) vol. ii, pp. 1464-1471 (1913).

³G. A. Hurd, *Annals of the American Academy of Political and Social Science*, vol. xxx, Sept., 1907, p. 174.

especially the Southern states, have been more liberal in the accumulations of back charges against the debtor in the final settlement of his mortgages.¹ The danger of losses under loose statutes and decisions will probably be very much lessened by the decision of the United States Supreme Court on the Kansas Statute providing that mortgagors should have eighteen months in which to make redemptions. This was declared unconstitutional.²

Farm Loan Bonds.—Considering the present high prices of land, as well as fertilizer and equipment, the farmer with limited means is placed at a great disadvantage when buying under a short term mortgage. The farmer in the past has been expected to pay for his equipment within from six months to two years, and yet the returns on this investment are stretched often over a period of fifteen years. How long would an industrial corporation which is funding 30 or 40 per cent of its capitalization be able to exist under this method of financing? As long as new land could be acquired so cheaply in this country, this condition was not a serious problem. But with free land practically all taken and land values increasing, the situation assumes a different aspect, especially, if small farms are to be developed which would seem the logical outcome with the increasing demand for intensive farming.

Europe, because of its small unit farms, was forced long since to adopt the principle of long tenure farm mortgages. Out of this one hundred and fifty years' experience the mortgage bankers of Europe have been able to lay down four established rules for the issuance of long time mortgage bonds: (1) A mortgage to be accepted must have such requirements as would allow it to be placed in one of the classes of a standardized classification of mortgages; (2) there must be a standardized percentage of loan value for the various kinds of property in this classification; (3) the requirement of an annual serial payment of loans must be met so that the possible embarrassment of the farmer may be lessened; (4) the amount of the bond issues to the capital stock of the companies is legally lim-

¹C. H. Wiltzie, *Ibid.*, p. 175.

²*Ibid.* (Quoted paragraph 1465-1466) Case of Banitz vs. Beverly.

ited. The violation of this last principle in the United States has caused a good many investors in debentures to come to grief. Among other regulations adding to the strength of the European securities is that forbidding the banks to loan on vacant property. The margins allowed between bonds and mortgages are so small, that there is little temptation to make risky loans. Foreclosed property must be immediately sold by the bankers. Surplus is treated as a distinct fund and net profits must be set aside annually until they reach 10 to 25 per cent of the capital of the mortgage company.

Too much emphasis, however, must not be placed upon the European experiences for the immediate needs of the United States. The majority of the loans made in Europe are to the peasant class. Relatively speaking, the smallest American farm is large and the business is still conducted on an extensive scale. Profits are likewise much larger, so that payments on well managed farms can be made in a brief period yet with less burden than is possible in Europe with its longer period of payments.

The United States in the adoption of the Rural Credits Act of June 16, 1917, for the first time has given national recognition to long-time credit, and payment on the amortization principles—two provisions which are needed by many of the rural communities of this country. As with all long time loans, a considerable amount of the funds must be obtained from the issue of bonds. It is to the details affecting the security of these bonds and the equity back of these instruments that this discussion is devoted, rather than to a consideration of the details involved in the institutions created under this act, excepting as they affect these two problems.

Neither is it the purpose here to go into much of the controversial matter related to this act. All certainly are agreed that long time credit is needed, but whether this should be extended wholly by private institutions under general government regulation or should continue to be granted as under the present system is a controversial matter which does not belong to the field covered in this book. The problem confronted in this chapter is—what are the investments offered under this act, and what safety do they possess?

The Rural Credits Act is constructed around two institutions known as the Federal Land Bank and the Joint Stock Land Bank, both under the control of a Federal Farm Loan Board. While the Joint Stock Land Bank is under the general control and administration of the Federal Land Board, it possesses more of the powers of a private corporation. This is illustrated in the fact that the loans made by the Joint Stock Land Bank are made direct to the farmer, while all loans of the Federal Land Bank are made directly through the National Farm Loan Association organized by the borrowers themselves. On the other hand, the intention of the act is to give the control of the Federal Land Banks to the Farm Loan Associations when these associations have increased in sufficient number and size to own all of the capital stock of the Farm Land Banks.

By the provisions of the act the Federal Farm Loan Board was originally required to divide continental United States into twelve districts.¹ The capital stock of these banks must not be less than \$750,000 and divided into shares of \$5.00 par value. Individuals, firms, corporations, and any state or the Federal government can subscribe for the stock. The provision for the Federal government subscription to the capital stock was made to insure the establishment of the bank. The voting shares are those held by the National Farm Association (described later) and those held by the government. As rapidly as the shares are taken up by the National Associations they will be relinquished by the government, so that eventually the farmer will have full voting control. Twenty-five per cent of all subscriptions above \$750,000 shall be used for the purpose of retiring the original capital, and thus transfer the control over to the associations. At least 25 per cent of the capital stock held by the National Farm Associations shall be in quick assets, and at least 5 per cent in United States government bonds.

All loans of the Federal Land Banks are to be made on first

¹Federal Land Banks are now located and operating in Springfield, Massachusetts; Baltimore, Maryland; Columbia, South Carolina; Louisville, Kentucky; New Orleans, Louisiana; St. Paul, Minnesota; St. Louis, Missouri; Omaha, Nebraska; Wichita, Kansas; Houston, Texas; Berkeley, California; and Spokane, Washington.

mortgages on farm lands and through a National Farm Association, excepting where there is a temporary failure to establish a National Farm Association or Associations.¹ These associations are created by the farmers themselves who want to become borrowers on first mortgages, and unless a farmer is a borrower he cannot become a member of the association. When ten or more land owners who actually operate their own farms desire to secure loans, articles of association required by the act shall be drawn up and be approved by the Federal Land Bank of the district.² The total loans shall aggregate not less than \$20,000. Each member must also subscribe to shares (\$5 par) in the association to the amount of one share of stock to each \$100 of loan made. These shares are held as collateral security for the loan during its life, but at its maturity they are retired at par. The shareholders are subject to a double liability, *i. e.*, an amount equivalent to as much again as the amount of the shares held.

When the National Farm Loan Association in turn must secure funds to loan to its members it must subscribe to the capital stock of the loan to be made. This stock is also held by the bank as collateral security against the loan, in addition to the claims against the farm conveyed to the bank by the mortgage. As the mortgage is endorsed by the association, it also becomes liable for the default in any interest payment or principal of the loan. As already stated, the loans of the Joint Stock Land Bank are made direct to the farmer, but they must conform to the same general regulations as loans advanced through Federal Land Banks. There are no restrictions placed upon the amount which these latter banks can loan to any individual.

¹Sec. 15 of Act states: "That, whenever this Act shall have been in effect one year, it shall appear to the Federal Farm Loan Board that national farm loan associations have not been formed (etc.)—in its discretion, it can authorize Farm Land Banks to make loans on farm agents approved by said board." Regulations of these loans are the same as those required of national farm loan associations. The loans are made through a local agent which must be a bank, trust company, savings bank, or mortgage company organized in the state in which the loan is made.

²Sec. 7 of the Act gives details of the organization of these associations.

The restrictions and security of the loans of these national farm associations are as follows: (1) All loans shall be duly recorded first mortgages on property located within the district of the Federal Land Bank. (2) Repayment of the loan must be made on an amortization plan, and this plan, according to the act, must conform to these conditions; at a fixed number of annual or semi-annual installments sufficient to cover, first, a charge on the loan, at a rate not exceeding the interest rate in the last series of farm loan bonds issued by the land bank making the loan; second, a charge for administration and profits at a rate not exceeding one per cent per annum on the unpaid principal, said two rates combined constituting the interest rate on the mortgage; and third, such amounts to be applied on the principal as will extinguish the debt within an agreed period not less than five years or more than forty years. The whole of the loan may be paid at any time after five years upon one of the installment payment dates. (3) Under the act, no loan on a mortgage shall be made with interest charges in excess of 6 per cent per annum exclusive of amortization payments. (4) The loans can be made for the following purposes: (a) to purchase land for agricultural purposes, (b) to buy equipment, fertilizers, and live stock necessary for the operation of the mortgaged farm, (c) to provide buildings, (d) to liquidate indebtedness at the time of the organization of the first National Association and for the purposes described under topics (a), (b), (c). (5) Loans shall not exceed 50 per cent of the values of the land mortgaged and 20 per cent of the improvements thereon.¹ (6) No loans can be made excepting to farmers who are both operators and owners of farms. (7) The amount of the loans must not be less than \$100 or more than \$10,000. (8) The general regulations laid down by the Board shall be complied with. (9) A rate of 8 per cent shall be paid on any

¹The limits placed throughout the Act on the amount which can be issued, especially by the Joint Stock Banks, have been evaded as reported in a number of cases; for example, by a husband deeding a portion of the land to his wife and then securing two loans. While this makes no difference to the investor who holds the bonds as long as the margins are met, there is no denying that it is an evasion of the spirit of the law.

default of interest or principal. As dividends are to be paid, if earned, on the capital stock of the Federal Land Bank owned by the National Farm Loan Associations, the cost to the borrower will be reduced to this amount on his loan. The earning power of these institutions is yet to be proven, and as a matter of fact the government is carrying a debt of millions for these organizations because of the failure to make the organizations pay for themselves.

Sufficient machinery has been established under the Act to insure careful appraisals of land values, if the administration of it is rigidly carried out. According to the Farm Mortgage Bankers' Association of America appraisements made by the banks created under the Act have often been loosely made. When a loan is applied for through the National Farm Association, it is referred to the loan committee of three members who shall make a detailed report. If the loan is then approved by the National Farm Association directorate, the application and report are submitted to the Federal Land Bank. This report is then referred to the land bank appraiser or appraisers, who in turn must make an investigation and report favorably upon the land before the Federal Land Bank board can grant the loan.¹ If a bond issue is made upon the mortgages under such loans, the appraisal must be further approved by the Federal Land Board.²

The farm mortgages which are taken by the banks to secure the loans advanced can be used by the banks as collateral for bond issues. To exercise the rights of this privilege, the bank

¹See Sections 7, 10, 12, 18, 19, 20 and 21.

²Looseness and lack of administrative control are to be expected to some degree in an organization as large as has been undertaken in this enterprise. This is especially true of the National Farm Loan Associations, many of which have never been carefully reviewed or audited. Unquestionably strong safeguards and checks must be established in protecting against loose and incapable appraisers. Some of the cases cited in the pamphlet published by the Farm Mortgage Bankers' Association on "Loans to Speculators" (second edition, Chicago Office, 1920, p. 39) are rather startling. Yet quite apart from the tax-exempt features or the injustices of the Act raised, the investor in bonds is not endangered, because these loans are the exception and not the rule. Nevertheless such loans are not excusable and detract to just that extent from the value of the security.

makes a written application to the farm loan registrar of the district and bonds are deposited with the latter to the amount required to secure the loan. If the Federal Farm Loan Board approves the granting of the loan, the bank can then proceed to issue the bonds on the security of the mortgages which are deposited with the registrar.¹

These bonds are: (1) issued in a series of not less than \$50,000; (2) to be coupon bonds; (3) redeemable at the option of the bank after five years; (4) to be in denomination from \$25 to \$1,000; (5) if not retired at the option of the bank after five years they are due in twenty years; (6) to be issued by any bank not to exceed twenty times its capital stock and surplus; (7) to have a rate of interest not exceeding 5 per cent. In addition to the liability of the issuing Federal Land Bank, all the other Federal Farm Land Banks are liable for the pro rata amount of their share of the bonds outstanding of the issuing bank, if the issuing bank defaults.

The interest and amortization payments received by both the Federal Land Banks and the Joint Stock Banks on mortgages held as collateral security for the issue of farm loan bonds shall constitute a trust. This fund is to be used by Federal Land Banks for the purpose of (a) paying for farm loan bonds; (b) purchasing farm loan bonds below par; (c) loaning on first mortgages or land within the district of the bank; or (d) purchasing United States Government bonds. The Joint Stock Banks have the same privileges except that in (b) they can buy farm land bonds at or below par.

As further security against loans, both the Farm Loan Associations and Federal Land Bank and Joint Stock Banks must accumulate reserves out of earnings. This is to be accomplished in National Farm Associations by setting aside not less than 10 per cent each year out of current earnings. When a 20 per cent reserve has been accumulated, 2 per cent of earnings shall be annually added. When the reserve is impaired, all dividends shall be suspended until the 20 per cent has again been reached. If the association goes into voluntary dissolution the

¹See Act, Sections 18, 19, 20 and 21.

reserve goes to the Federal Reserve Banks. The Federal Land Banks and the Joint Stock Banks must also accumulate a reserve up to 20 per cent of their outstanding capital. An annual amount of 25 per cent of the earnings shall be set aside each year for this reserve account out of the earnings of each year. When the 20 per cent requirement has been reached 5 per cent of net earnings shall be annually added to the reserve. In case of a default extending over a period of two years in principal and interest or amortization payments on mortgages, this default shall be deducted from the reserve.

The Joint Stock Land Banks which are authorized under the same statute can be incorporated by ten or more individuals. The stock of these banks can be owned by individuals, firms, or corporations, all having equal voting rights. The stock of these banks, like the stock of the Federal Land Banks, carries with it a double liability. A minimum of \$250,000 capital stock must be subscribed and one-half paid before the bank can commence business.

These banks have the right to advance loans on first mortgages and to issue farm loan bonds. The rules governing the issue of the bonds of these banks are generally the same as those of the Federal Farm Land Banks, except that the issuing bank alone is liable for its own bonds. Interest rates on mortgages are subject to the same rules as those of the Federal Land Bank, though they are not reviewed by the Federal Land Board. Loans are restricted as to amounts or purposes to which funds are put by the farmer, and the one to whom the loan is extended must be a farmer. Loans are confined to the district in which the bank is located and to one state adjoining this district. The total amount of loans is limited to fifteen times the amount of the capital stock and surplus of the bank.

One attractive feature to the large purchaser of securities who invests in the bonds issued by both Federal Farm Land Banks and the Joint Stock Banks is the exemption of the bonds from any taxation. They are exempt from all Federal and state taxes. The bonds are also lawful investments for all judiciary and trust funds and may be accepted as security for all public deposits. Any member bank of the Federal Reserve System

and Federal Reserve Bank may buy and sell farm loan bonds.

The Farm Mortgage Bankers' Association has taken a decisive stand against the injustice of the tax-exempt privileges, maintaining that this feature of the Act should be amended. Without question this will sooner or later follow. As already stated, the tendency in taxation is toward the elimination of exemption.¹ With the adoption of a changeable rate on mortgages and a non-tax exemption of all mortgages, it is undeniable that the Farm Mortgage Bankers will procure what they desire—an equal advantage and direct competition. One other condition maintained by the Farm Mortgage Bankers beyond all contradiction is that, if additional amendments are needed to make the organization pay for itself, these should be made. Unless this is done, American tax payers at large must pay for the support of the industry by taxes.

¹E. D. Chassell, *Address before the Illinois Bankers Association*, La Salle, September 4, 1919. (Secretary Farm Mortgage Bankers Association of America; *Hearings before the Committee on Banking and Currency*, Sixty-sixth Congress, Second Session, January 10, 1920; *Loans to Speculators* Ibid; E. D. Chassell and Kingman Nott Robbins, *The Case For and Against Tax Exemption of U. S. Government Bonds and Federal Farm Loan Bonds* (Second Edition, Revised 1920, p. 38.) See also *Bulletins of Federal Farm Loan Board*.

CHAPTER XXXI

IRRIGATION SECURITIES

The position of irrigation securities¹ has changed both in character and distribution in the last decade. The experiences of the purely promotional enterprises under the Trowbridge and Niver leadership in Chicago are still remembered by some investors in the Middle West with a good deal of regret. Though the majority of these projects were fundamentally unsound, their failure affected the whole industry and gave sound enterprises an unfortunate setback. A careful study of the matter, however, will show a great many small but suc-

¹Although Major J. Powell of the Geological Survey of the United States submitted a very favorable report as early as 1875 on the irrigation of Western lands, nothing of much consequence was undertaken until the Act of June, 1902, though the original Carey Act was passed in 1894. No direct bond issues are made under the first named Act by the government, though bonds can be issued by private corporations on land coming under the regulation of this Act and also under the Carey Act which will be described later. The Irrigation Act of 1902 does not enter into the subject of irrigation securities, except as it may indirectly affect them, but because of the popular misconception that it does, it is well to state briefly the character of the Act.

The Act provides that the money received in certain states from the sale of land (exceeding the 5 per cent set aside for education purposes) shall be used as a special fund for the construction and maintenance of irrigation works for reclaiming semi-arid land. The Secretary of the Interior, when he has selected a site and provided for the building of the proper irrigation works, allows entries of a given size to be made on the land that will be benefited by this irrigation. This is done with the provisions that: (1) the land benefited shall pay for the cost of constructions; (2) the water rights and the land shall be paid for in ten equal installments; (3) the water rights shall be sold to any owner of the land, but not in excess of the amount needed for 160 acres of land; (4) every purchaser of water rights and land must be an actual settler on the land; (5) one-half of the land shall be cultivated; (6) when the greater part of the land shall have been paid for, the title of the ownership of all the irrigation works passes into the hands of the settlers who will then control them under a form of organization acceptable to the Secretary of the Interior. The Reclamation Service of the United States has irrigated approximately 7 per cent of all irrigable land in the United States.

cessful enterprises which were developed and operated even during the experimental period of irrigation.

While these early failures have continued to influence the Middle West and Eastern markets, certain irrigation securities, through constructive development, have been gradually assuming a fixed but limited place in the field of investments. The distribution of these securities, however, has been largely confined to the states originating them, principally California, Oregon, Washington, Idaho, and Montana. This situation no doubt will explain the reason for the unfamiliarity of Eastern markets with these securities.

Contrary to the popular belief that the majority of the irrigation projects have been built by bond issues—this is true of a comparatively small proportion. Approximately one-half of the projects, excluding those controlled by the government, from the first irrigation works constructed by the Mormon immigrants in 1847 in Utah, up to fifteen years ago were built by individuals and partnerships. The greatest difficulty of a large part of the irrigation projects in the United States has been not a financial one but the technical problem of irrigation itself. But relatively small in number as the projects offering securities to the public may seem, they nevertheless are of large proportions and involve millions of dollars. Mr. Herbert M. Wilson and Mr. John A. Widstoe estimate that the investments in irrigation works of the United States Government approximate \$100,000,000.¹

Municipal Irrigation District Bonds.—The Irrigation District bonds are today the strongest and the most desirable of all irrigation bonds. As a matter of fact, practically all irrigation projects are now being built either by the United States Reclamation Department or by Municipal Irrigation Districts. Irrigation district bonds are issued by a special municipal corporation tax district. As explained under the special assessment bonds, the population of a given area, desiring to procure funds for irrigating, organizes a quasi-municipality which has

¹H. M. Wilson, *Irrigation Engineering* (1912), p. 2. John A. Widstoe, *Principles of Irrigation Practices* (1914), p. 462.

the power to levy taxes within this given area. The district issues bonds, the interest on which, together with the principal, is secured by a prior lien upon the property within the limits of the district.

The Irrigation District laws of the state of Oregon are now (1920) regarded as the best of the existing state irrigation laws. Particular care has been given in the framing of this statute to such matters as the creation of a district through an election by the citizens of the district, the issuance of bonds, the confirmation and ratification by the courts of the legality of the issues, the certification of the bonds, the guarantee of interest under certain conditions, etc. The Oregon statute is worthy of much more detailed consideration than this chapter allows. California, Colorado, Idaho, Kansas, Nevada, and Washington, the states possessing the older works, have also built up a considerable body of laws governing these municipal irrigation districts, which also have been copied by some of the states which have undertaken irrigation projects more recently. These laws have very materially strengthened the position of Municipal District securities in these states. Practically all states require that bond issues shall at least be sanctioned by the qualified taxpayers of the district.

Districts like the Progressive, New Sweden and Snake River in Bonneville County and the Pioneer and Nampa Meridian in Ada County, Idaho, are comparable in production capacity to many counties in the Middle West. Probably one of the best known of these Municipal Districts is the Imperial Valley District of California. Numerous other small districts, equally successful, exist, which possess rich soil and have large productive capacity. The sale of their securities, while amply protected, is confined to a more or less local market.

The same care, however, must be exercised in the selection of irrigation securities as in deciding on a bond of any other project. Had the purchasers of the bonds of certain Municipal Districts a number of years ago familiarized themselves with a few of the fundamental requirements of a successful irrigation project, the purchases would never have been made. For example, in one district in Colorado, which had both ample water

supply and fertile soil, and had demonstrated its productive capacity—it was found that the district was too far removed from transportation to make it a paying proposition. In fairness, however, it should be said that from the start this was a promotional enterprise. Had the purchasers of these securities obtained some information as to the length of time this land had been occupied and owned by settlers as well as the method of selling it—they would never have bought these bonds as investments.

Carey Act Bonds.—While the Carey Act Bonds at this time are relegated to the background, the early experiences with these issues are instructive to the beginner. Offerings, however, made by private land or development companies operating under the Carey Act, occasionally do appear.

In order to hasten the settlement of arid and unoccupied land the Carey Act (since amended) was passed in 1894.¹ By this act the Federal government can give to the various arid states unappropriated lands within their respective borders under the condition that the land be sold to actual settlers. Ten states have passed legislation appropriate to the requirements of the Act, though actual reclamation has taken place in only five states.² These tracts are to be sold in plots not to exceed one hundred and sixty acres to one person, and at least twenty acres must be irrigated and put under cultivation in each plot. The primary purpose of the Act was to assist the states in the settlement of these unoccupied lands and at the same time to protect the settlers and the United States from fraud.

¹Carey Act originally passed August 18, 1894, 28 Stat., 422. Important Amendments: Act June 11, 1896; 29 Stat. 434. Act of March 3, 1901; 31 Stat., 1188.

²The amount of these five states projected and irrigated in 1917 was as follows:

State	Area Projected in Acres	Area Irrigated 1917 in Acres	Per Cent Reclaimed
Idaho	868,300	456,600	52.5
Wyoming	250,400	114,150	41.5
Montana	183,000	82,000	44.6
Oregon	82,000	25,000	30.4
Colorado	1,405,700	692,750	49.3

Guy Ervin Irrigation under Provisions of Carey Act, *U. S. Department of Agriculture* (Circular 124), p. 6 (February, 1919).

With the passage of this Act private capital quickly organized to avail itself of the privileges granted under the Act. After the application has been approved by the State Engineer, the State Board of Land Commissioners, the Secretary of the Interior, and the President, the corporation can reclaim the assigned lands and appropriate water rights in the adjacent state streams under the supervision of the state. The Federal government agrees to give the corporation a first lien on all these rights and not to sell the land until the settler has secured from the corporation corresponding perpetual water rights for his lands. The purchase of these water rights by the individual from the corporation is made possible under "The Carey Act contract" which forms the real security of the "Carey Act Bonds." The cost to the settler is generally from twenty-five to forty dollars an acre, though often higher. Ten per cent is required in cash payment and promissory notes are given for the remainder, but the title does not pass from the state to the settler until the actual settlement of the land has been made and it is under cultivation. In Idaho, the title cannot be given until two years after the irrigation project is completed. As some time must elapse after these bonds are first issued on new projects, before they have any security of consequence back of them, and as the construction company never has any title to the land, the security rests in the future completion of the irrigation works. The so-called "first lien on lands" and "water rights" at the time of the sale of these bonds are then merely future possibilities depending upon the success of both the irrigation works and the cultivation of the land.

Private Corporation Bonds.—Practically all private enterprises can be placed in one of two general classes. The one includes corporations which control only their water system and canals. The bonds of these companies are probably the weakest of the irrigation securities. In the other class are included the corporations whose bonds are secured by both water-rights and land.

With both of these types of companies the payment of their bonds depends on how efficiently they transport their water.

This condition virtually makes these corporations common carriers and consequently more subject at the present, at least, to restrictive legislation. Companies of this character, as for example in Colorado, have been known to suffer considerably from such legislation. Where the possessor of these securities has attempted to foreclose, he has usually experienced considerable difficulty in establishing his rights at equity over those of the owner of the land.

In the second form of corporate enterprise, the bonds are a lien on all the property owned by the company. The payment of these bonds depends on the sale of the land to settlers. If conditions are unfavorable for the sale, it generally means that the bonds automatically become defunct. The ordinary practice in a project of this type is to organize two companies, namely, a land company and a water company. The land company will mortgage each tract of land to the water company (this mortgage is assumed by the individual settler) for the accompanying water-right of that tract. The water company then bonds its properties and deposits these bonds with a trust company as collateral security for the bondholders.

Security of Irrigation Bonds.—The more important tests which should be applied to any of the irrigation projects in determining their value are as follows: (1) location of the project; (2) accessibility to transportation; (3) amount and permanency of the water supply;¹ (4) percentage of lands of the irrigated area under cultivation; (5) percentage of waste land; (6) population of the irrigated area; (7) lien per acre;² (8) annual average crop yields; (9) assessed valuation of the district³; (10) land titles and associated water-rights; (11) the cost of the project; (12) the capitalization of private irrigation enterprises; (13) capital possessed by settlers on new areas being developed; and (14) the use to which the bond proceeds are to be put, whether for the construction of new devel-

¹See chap. xxii on Hydro-Electric Securities, Topics on Water Supply, Pondage and Control.

²See chap. xxxii on Drainage and Levee Bonds and Farm Mortgages on the topics of security and liens.

³See chap. xxxiv on Valuation, Tax Rate and Validity as Related to Civil Loans.

opment or toward the purchase of a project which has been in operation for several years.¹

As a number of these features have already been demonstrated, it does not seem necessary to discuss in complete detail the several tests that distinguish a good from a bad irrigation bond. Certain conditions which are peculiar to this industry are, however, in need of further consideration.

*Water Supply.*²—The larger part of the failures in irrigation projects in recent years due to lack of water supply recall the early contentions of a number of prominent and conservative irrigation engineers. They consistently maintained that a lack of water supply would be one of the serious difficulties resulting from the abnormal growth of irrigation projects. In arid regions, at least, the success or failure of the project largely depends upon the available water supply. And as the security of all irrigation bonds depends directly on the success of the irrigation works, and the irrigation works are of no avail without a sufficient water supply, the first requisite in a consideration of irrigation securities is the water supply.

In this respect large government projects of the future will have the advantage over the smaller projects, and as pointed out elsewhere, the large costs involved in securing water will be the factor limiting the number of new irrigation projects outside of the Federal government institutions. Not only is it becoming more costly in many cases to obtain water because of the remoteness of a sufficient supply but also the enormous expense involved in obtaining a guarantee of an adequate supply of water will make it increasingly difficult to induce capital to invest in private projects.

Great credit must be given the majority of the engineers for their careful supervision of the construction of irrigation works. Much of this construction, however, has been of an entirely new character, often giving rise to problems which could not possibly be foreseen and hence are more difficult to handle. For example, the character of run-offs, the variation in evaporation, the

¹See chap. xxxiv on Valuation, Tax Rate and Validity as Related to Civil Loans.

²*Ibid.*, Chap. XXII.

influence of soils on seepage, the effect of water sheds, the losses from waste, and the character of the source of the supply of water, are just beginning, with the increased amount of data on these subjects, to be ascertained.¹ Under the older and smaller projects, these difficulties were never experienced, but the estimates made for a number of the newer systems upon the basis of these older projects led to a number of unhappy results, because the newer systems did not have the cheap and abundant supply of water possessed by the old projects.

Land Title.—Land titles² can hardly be considered apart from their associated water rights. Private projects, however, from the standpoint of the investor cannot be commended unless the land title is separately guaranteed. Where the bonds of private corporations are secured both by the water rights and the guaranteed land title, other things being equal, they are preferable to the Carey Act bonds. Even in an area which has a partial rainfall, the mortgage on the land, even if the irrigation project fails or is not completed, has some value.

As the municipal district bonds are issued by the districts, the land title is not a direct issue, though indirectly it may become all-important. If the greater part of the land of a municipal district is open only to homesteading and is not yet occupied, it is not subject to taxation. Regardless, then, of how large the area occupied may be, an impossible burden may be placed upon the small part of the area occupied. But this is a problem of occupancy rather than one of land title, as occupancy automatically determines both ownership and the ability of the district to meet the bond obligation.

Land titles can hardly be considered an issue with the Carey Act bonds.³ As the ownership passes directly from the Federal

¹Samuel Fortier, *Use of Water in Irrigation*, pp. 13-18. Frederick H. Newell and Daniel W. Murphy, *Principles of Irrigation Engineering*, pp. 263-275. Herbert M. Wilson, *Irrigation Engineering*, pp. 7-34.

²Herbert M. Wilson, *Ibid.*; J. A. Widstoe, pp. 371-373.

³As it is impossible under the Carey Act for an irrigation company ever to acquire even one acre of land, the assertion widely advertised a few years ago by many organizations selling these securities, that these lands constitute a direct lien on the irrigated property, was not true at the time of the sale. This "lien" can be made only against the settler himself and his water rights. It was one of the chief purposes of the

government through the state to the purchaser, the title to the land is assured when the water right fees and the small homestead charges have been paid, and the initial cultivation requirements have been fulfilled. Again, of course, water rights and the completion of the irrigation works determine the value of the land which secures the bond issue.

Costs.—With the failures beginning in 1908, the charge was brought of great extravagance in the construction of irrigation works. This has been especially true of the Federal government projects which do not come under our consideration. While this charge has been justifiable in some cases, many critics fail to realize that the enhanced difficulty of building these projects brings with it an increased cost in construction. The early projects had soon utilized the accessible and easily irrigated lands in the arid regions, and with each added project, it has been necessary to build more costly works in order to insure an adequate water supply. To the investor, this is of importance, as the cost of construction determines the ratio of capitalization per acre of irrigated area, which is comparable to the mileage measurement on railroads. But here again, is an illustration in comparative statistics which the student must use within its limitations.

The range of these costs seems to the average layman almost inconsistent with sound business, until the specific causes have been determined. At Grand Junction, Colorado, where there are five district enterprises pumping water to their land, the costs at the time of construction ranged as follows:

Carey Act to prevent land grabbing; otherwise, it would have been an easy matter for a company to place dummies on the various tracts and obtain enormous areas of valuable land. The widespread idea that the bonds are secured "by a deposit with the trustee of the settler's mortgages" is still further weakened by the lack of any title to the land on the part of the settler himself, till after the government patent has been granted. This patent, as will be recalled, cannot be given in some states till after a certain term of actual settlement. But even if the settler is allowed to take the direct title to this land, as he is permitted to do in a few states, the Carey Act still makes the mortgage, if contracted, non-enforceable. In addition to this, the companies of more doubtful standing are compelled to issue the greater part of their bonds before any construction is really begun. What security is offered to these bondholders? Nothing but the goodwill of the corporate enterprise; consequently, the mortgage feature of the bonds is chiefly fictitious.

	Debts	Cost per Acre
Palisade	\$265,800	\$45.00
Mesa	205,000	78.00
East Palisade	53,600	89.00
Orchard Mesa	1,329,480	153.00
S. Palisade Heights	110,600	180.00

In Yakima Valley water rights of private projects vary from \$50 to \$135 and over. Eight private projects in Colorado exceed \$60 per acre and two over \$100. In Idaho, the Carey Act projects vary from \$25 to \$65 per acre.¹ These illustrations are sufficient to indicate the variation in debt burden that these irrigation works carry. If a bonded obligation of \$30 per acre were assumed to build a project, the burden would not become so great if \$20 per acre had to be added to complete the work, or the water supply was found to be insufficient. But to add \$20 to an acreage already carrying \$180 indebtedness, is a different proposition. And not infrequently, where the topography of the country makes the cost of erecting the works high, the farmer for the same reason finds it costly to put his farm in a condition making irrigation possible.

As the settler must ultimately pay the obligation, this decreases the possibility of security, especially if the settler depends, as the majority do, on his crops for providing both working capital and future payments of his obligations.

Where the region allows of an irrigation project being easily developed and three or four crops can be matured in a year, its acreage can obviously carry a much greater construction cost than an irrigated area located in the more northerly climates where only one crop is possible. Adaptability of soils to a wide range of varied crops under the same geographical conditions, will also permit the same relative increases in costs. Specifically what these variations will be, cannot yet be foretold, as the projects are too new to have allowed the acquiring of adequate data. But a correct analysis of these influences upon costs must determine the amount of warranted funded debt that should be assumed.

¹D. C. Henry, *Engineering News*, vol. lxxvi, January 15, 1914, pp. 120-4. These costs have since greatly increased on most irrigation works.

Capitalization of Private Enterprises.—One type of private enterprise has often floated a bond issue at the rate of one and one-half of the value of possible future water rights, to one of the bonds, whose only security are those same water rights of the future. It must always be borne in mind that this security is not tangible till the works are completed. If the proper estimates have been made so that the work can be carried to completion, it may prove a safe investment, but at the time of the bond sale it cannot be considered other than the highest type of speculation. As already stated, if the land is in a semi-arid region, the land itself will have some value if the bond has been made a first mortgage upon the land. The danger here usually lies in the valuing of the land not as semi-arid land, but as irrigated land.

The second type of private corporation which offers the security of both land and the accompanying water-rights has the same objectionable features. If the corporation is an entirely new enterprise in an arid region, the land is generally utterly worthless till water is available. The real success of the concern depends upon the ability of its promoters as agents, for the whole income of the company must come from this source. Corporations of this type need to be closely scrutinized by the investor.

The lack of a legitimate amount of capital stock in proportion to the issue of bonds, also, shifts to the bondholders a great part of the risks which in any new conservative undertaking should belong to the stockholders. Neither the state nor Federal government makes any regulation as to the amount of capital stock corporations should issue. A risk such as this is exactly what a careful investor in bonds desires to avoid, for the irrigation works and the land of an enterprise that has failed have little value.

As already stated, district irrigation bonds are the best of the irrigation securities, if the irrigation project is completed within the proposed period. If, however, the project is not thus completed, the settlers, if wholly dependent upon this water supply to cultivate the land, are probably unable to meet the tax. The only security back of these bonds then may be

worthless land. In addition to this, as is often the case, a large part of the area may be government land, which is not subject to tax until homesteaded. This, of course, lessens the worth of the security, as the entire burden is placed upon the remaining land of the district benefitted, and this is especially burdensome where the population is small. The irrigation district under the Wright Act experienced this very difficulty. The cost of the irrigation was so great and the districts were so slowly settled, that the bonded debt was more than the population could meet by taxation. Unable to obtain legal relief they either repudiated their bonds or reduced the principal and interest. It is quite evident, then, that the payment of these bonds does not depend on their original value or present earning capacity, but on the future completion of the project. Where the district has been settled for some time, the bonds may be issued to extend an existing system. If the land in the district has not been already heavily mortgaged, these bonds may have sufficient security to place them in the highest class of conservative investments.

Working Capital Requirements for Settlers.—Lack of working capital by the settler has been one of the serious difficulties connected with the operation of the irrigation system. Often failure has not been directly due to the irrigation organization, but to the ignorance of the settler concerning the technical problems involved in irrigated land. The successful farmer of the Middle West has often been as much of a failure with irrigated land as the novice at farming. The settler has usually used all his available capital in making the initial payment and made no provision for getting his farm ready for irrigation. He estimates that he will be able to meet his subsequent payments from the proceeds of his crops. But irrigating is of little value unless the land has been properly leveled up so that irrigating ditches may benefit equally all portions of the area. Rarely except in a river valley is a farm found, so located that it does not involve a considerable expense in placing it in proper condition for irrigation. Then also, certain soils need fertilizer to contribute the chemicals necessary for the crops best adapted to a particular locality. While it is true that this

is a technical problem in irrigation, the failure of the farmer to recognize it may spell disaster for him, and consequently affect the status of the whole project. The same thing has been true and even more so where there has been a complete destruction of crops by either frosts or storms. One authority states that 80 per cent of the settlers on newly irrigated land have no knowledge of irrigation problems.

The Market.—The market for irrigation securities has never been wide. As stated in the introduction to this chapter the chief market for these securities is found in the state and the adjoining states in which the irrigation project is originated. And while the market is local to the Northwest and Pacific Coast states, some of the issues are fairly active. No market except now and then for a larger issue exists east of the Missouri River.

One authority states that there are at least one hundred successful municipal irrigation districts whose bonds have a fairly free market in line with other securities in the Northwest and Far Western states. The municipal issues also have the advantage of being tax exempt, and are legal investments for the majority of this same group of states.

CHAPTER XXXII

DRAINAGE AND LEVEE BONDS

Drainage and levee bonds, like irrigation bonds, are reclamation issues depending for their success upon the proper solution of both land and water problems. Though drainage issues and levee issues are made for entirely opposite purposes—the former to eliminate surplus water, the latter to prevent overflow—their problems as to land tenure and the securing of funds for developing the project are quite similar. Drainage and levee bonds can be classified as either private corporation bonds or special assessment district bonds. In this discussion they are put in the former classification. The limited experience with both drainage and levee districts necessitates a closer analysis of the physical security of these bonds than of the equity of other special assessment securities. As to their legality, assessments, valuation, population, and taxation, these securities can be analyzed as are other special assessment securities.¹

Where special drainage or levee districts are organized within the boundaries of a city or town, drainage and levee bonds may well be considered as special assessment bonds. Bonds issued by districts organized in well established farming areas for the purpose of constructing ditches and drains, though subject to special statutes, can also be treated as any other improvement bonds. The same can be said of the bonds of special sanitary districts—created by general or special enactments—which include a city, as for example the Sanitary District of Chicago. However, issues of districts created for the purpose of reclaiming new land for agricultural use should be given more careful attention, as these present special and peculiar problems quite distinct from those affecting the creation of tax

¹See chaps. xxxiv and xxxv.

districts for other purposes. And the emphasis in this chapter is placed upon the problems of these agricultural districts.¹

Levee and "agricultural drainage bonds" have only in recent years come to general public notice, though they have been offered in local markets for twenty years or more. The earliest efforts at constructing drainage and levee systems were conducted by individuals, and were handled through personal credit. These earlier projects used the small areas from which it was possible to drain water, but as it became necessary to use larger areas to get the desired drainage, the size of the district had to be increased correspondingly and so individual undertakings developed into cooperative organizations. These projects in turn continued to increase in size in order to obtain sufficient funds to assure effective physical drainage. To effect this financing, so called districts were created and organized into civil corporations in order to obtain funds from the outside. The bond issues of the first projects growing out of these early undertakings were limited to less than \$100,000. As the size of the earlier issues made it possible for the local investors, who have been eager buyers of these securities, to purchase the greater part of the offerings, only a few of these issues came to public notice. This condition has consequently prevented the larger investment market from becoming familiar with these securities. The fact that the Federal government has built some of the large levee projects has also tended to eliminate the necessity for large expenditures by private corporations for levee purposes. The states of Arkansas, Louisiana, California, Illinois and Ohio have made the largest expenditures for levees, though their appropriations for this purpose have only equalled one-fifth to one-third of their appropriations for drainage.

The growth of drainage expenditures is well illustrated in Missouri. The outlay by drainage districts in that state in 1915 amounted to \$10,000,000 as compared to less than \$1,000,000 in 1900. But the expenditures for drainage to reclaim agricultural lands have been confined almost wholly to the Mississippi

¹See chapters on Civil Loans. See also R. S. Hecht, Louisiana Municipal Drainage Bonds Convention of the Investment Banker's Association of New York (1912) Proceedings, pp. 172-180.

and Ohio Valley states, and the state of California. The salt marshes of the Atlantic and Gulf states have scarcely been touched. With the growing congestion of an increasing population even larger areas will be reclaimed and the output of these securities added to materially. For the immediate future, however, the larger output of agricultural drainage bonds will be in the Mississippi Valley states. It is claimed by one authority that in the Mississippi Valley alone there are 25,000,000 acres of land awaiting drainage and improvements.¹

Organization of Districts.—In some few cases, a city will assume a drainage or levee issue as a direct obligation. The majority are, however, issued by the civil division of the county or by a specially created district. Where the issue is secured by a large area covering several counties, the issue must necessarily be made by a district. The total amount of the outstanding issues of the districts approximately equals the total sum issued by counties, though the issues of the latter are for the smaller drainage areas.

When a given number of land owners of proposed area, representing a stated proportion of the land of this area, desire to construct ditches for drainage, or levees for protection against overflow, a properly attested petition requesting the organization of a district² is generally prepared and filed in the jurisdictional court. This petition stipulates in detail the owner-

¹Tom K. Smith, address on Drainage Bonds delivered before the Investment Bankers' Association, September 21, 1915, Denver, Colorado (Proceedings, pp. 129-130).

J. Sheppard Smith further states: "In the state of Louisiana, alone, there are said to be 10,196,605 acres of swamp or marsh lands which should be drained wholly or in part; in Arkansas, 5,912,300 acres; in Mississippi, 5,760,200 acres; in Missouri, 2,439,600 acres, and in Alabama, 1,479,200 acres (Annals of American Academy of Political and Social Science, vol. lxxxviii, March, 1920, p. 103).

²No attempt is made in this discussion to give an exhaustive statement of the different methods of organization. In the state of Missouri these articles are filed with the clerk of the circuit court. The jurisdiction court, of course, is not the same in all states. If the drainage area is in more than one county, the articles are presented to the court in the county in which most of the land is situated. This act is known as the Circuit Court Drainage Act (passed in 1913). It has been largely copied by several states.

The compilation of the Drainage Laws of the various states by the Investment Bankers' Association is a useful compendium to any one interested in these securities.

ship, area and character of drainage, other lands affected, and usually, the proposed method of financing, manner of maintenance, and the necessity of the undertaking. After the termination of the period of proper notification, the court in most states holds a public hearing to determine the competency of the petitioners and the validity of their petition. If a favorable decision is reached by the court, provision is first made for the creation of the administrative body.

The more common practice, after the officials who are elected or appointed by the court have formally organized their board, is for this board to proceed to make a preliminary examination of the district to determine whether the benefits which may accrue to the lands, warrant the cost of construction, maintenance and damages to other lands and right of way. In some states the commission has jurisdiction of dismissal if the costs are found to be greater than the probable revenue, though appeals may be made to both the jurisdictional courts and then to the higher courts. If the project is approved by the commissioners, a definite plan of improvement is made on the basis of the surveys, together with the proposed method or methods of financing. After a report is again submitted and reviewed by special officers of the court, a public hearing can be requested by the people after statutory notice has been given. Any land owner in the district can present evidence of his approval of or objections to the assessments to be made upon all or any part of the land included within the area proposed. The court, which has the power of amending these articles, then renders a judgment, and where it approves, allows the board to assess all lands in the district in accordance with the terms rendered in the decision. This judgment can again be appealed to a higher court by any of the affected parties. The plans having been given the final approval, the commissioners then proceed to secure funds for financing. Where the expenditures are large, funds must be secured, as with other civil obligations, by long time bonds. After the districts have been organized, the issuance of bonds is the next step. The methods of issuance vary a great deal, but the underlying security of the bonds is not affected by the method of issuance.

*Security.*¹—It is needless to say that no improvement should be undertaken unless the resulting benefits greatly exceed the cost of the project. This requisite makes it incumbent upon the officials of the jurisdiction to place a tax upon each farm on the basis of benefits received from drainage. For illustration, if an improved farm within the border of a drainage district requires less drainage than other farms, it should be taxed less in support of the drainage system, since the benefits received are less. While this is the only equitable method of distribution, it may in some instances, where the benefits largely accrue to a small area of the drained district, make the tax rather burdensome and it may even lessen the stability of the security. While this situation seldom occurs, when it does arise, it may become very embarrassing.

The success of the project should not be made dependent entirely on the success of the drainage area in land selling, as has been the case with a goodly number of irrigation enterprises. If colonization is necessary, the bond issue is rarely very desirable. Unsettled areas are always subject to so many problems that the risk becomes more than correspondingly indeterminate and puts the securities within the speculative class.

Where the security is not sufficient to warrant the issuing of bonds for constructing drainage facilities and offering them to the general public before the project is built, but where it will be sufficient when the area is drained and the land has been under cultivation for some time a bond issue might be marketed. This procedure, however, is usually impractical, especially where the district is one of small land owners, as they do not have the funds to carry out the project.

Levee district bonds, as a class, can never offer the same assured safety as drainage issues where the drainage project securing the bonds requires but little or no protection from levee construction. A levee is always more or less in danger of extraordinary floods and the consequent destruction of a very large

¹It is hardly deemed necessary to discuss the security of the city drainage or county "ditch bonds," which are adequately covered under special assessments.

part of the crops and improvements on its area. As the payment of taxes is dependent upon the earning power of the area, such a large destruction of property in the early period of an issue might cause at least a temporary suspension of interest payments. But owing to the fact that the Federal government has done the major part of the levee building in the region south of St. Louis, Missouri, to the mouth of the Mississippi (which region includes the greater part of levee building in the United States) the experience of local civil division has been considerably limited.

As officials usually have no experience in drainage problems, it is very essential that the statutes governing the administration cover rather specifically the power and limitation of the officials' authority, and penalties should be made severe for non-compliance to duty. Consequently, receipts and expenditures should be frequently audited to check quickly the development of any serious mistake that may arise, especially during the period of construction.

The importance of the character of construction to the future success of the district is obvious and necessitates the employment of a reputable engineer to pass upon all details of construction. To guarantee further safety, not only should a reliable contractor and agent be engaged, but the contractor's surety bonds should be drawn so as to give full protection by covering all reasonable losses.

Taxes.—The tax of the district should be secured by a fixed lien upon the property benefited. A sufficient margin for any exigency should be allowed above the total funded indebtedness. The more conservative statutes limit the funded debt of a district to 90 per cent of the tax levy. But the percentage of the funded debt to the tax levy is rather meaningless unless the benefits and value of land are also compared to the tax levy. For example, a tax levy of \$2.00 per acre upon land valued at \$75.00 per acre, would have little basis for comparison with a tax levy of \$2.00 upon land valued at \$8.00 per acre. The chief danger, however, lies in the overvaluation of the land, for this again destroys the significance of the tax levy ratio. The temptation, of course, is always great to inflate the valuation of the

cheaper land, or to cover up a large acreage of undesirable land by a general average, but when reputable agents and engineers are employed, the danger of this is reduced to a minimum.

The annual taxes should also be sufficient to cover all maintenance charges; the limitations and regulation of these charges should be fully set forth in the statutes together with provisions enforcing the proper expenditures of this fund by district officials. Several of the earlier statutes stated these requirements in such vague form, especially those relating to the administration of funds, that a misunderstanding of them often resulted in considerable embarrassment to the district.

Mr. J. Sheppard Smith's statement concerning the Missouri law is well worth detailed study:

"Bonds may be issued not to exceed 90 per cent of the total taxes levied with interest not exceeding 6 per cent per annum payable semi-annually maturing serially for twenty years, beginning not later than five years after date. Such bonds cannot be sold for less than ninety-five cents on the dollar and accrued interest. . . . In the event of failure of the proceeds resulting from the sale of land for taxes proving sufficient to pay the delinquent taxes, the board of supervisors has the right to levy an additional tax on the entire district to make up the deficit and which in effect provides for a thorough safeguard to the investor for the full payment of principal and interest in accordance with the tenure of the bonds."¹

As emphasized under the topic of "Security," a failure to make provision for this exigency may prove fatal to the enterprise. Several of the statutes either set up no safeguard against such emergencies or the statutes have so regulated the matter that any lack of funds throws the whole affair into the courts. And the possibility of long drawn out court proceedings does not add to the value of any security. Fortunately, in all readjustments the courts are now inclined to make broader interpretations of the statutes. This is shown, for example, in the limited powers granted to the drainage districts to tax in the early history of the development of this industry. Allowing an organized district to levy a tax for the improvement of privately

¹*Ibid.*, pp. 106-107.

owned lands was never countenanced. This narrow attitude has changed, and where public welfare is involved, the statutes prohibiting this form of control are being corrected. Where, however, the statutes lack definiteness, court decisions must be more closely checked.

The Market.—While the market for these bonds has greatly increased in recent years, it cannot even yet be called a broad one. The drainage issues of the Mississippi Valley, which twenty years ago were never considered by New York bankers, are now looked upon with favor when properly issued. Especially are those issues sought which have the same tax rights and privileges as other municipal issues within the state. The greater part of the drainage bonds, however, continue to be absorbed locally. A considerable number of these issues will be found listed under the “investment fund” item of state banks, trust companies and insurance companies of the issuing states.

The net yield of these issues, as a whole, is higher than that of other forms of special assessment bonds, though the average return of all city and county districts, including ditch (drainage) bonds is lower. Levee bonds, however, even in the same general area, will compare unfavorably with drainage issues.

The majority of these bonds are now issued in serial form. Even where the commissioners possess the option of issuing sinking fund or serial payment bonds, the usual practice is to use the serial forms. The maturities range from one (serial issues) to fifty years with no conformity in duration. The average maturity is about twenty years. Under no consideration should the bond extend to the end of the life of the improvement.

The United States Treasury Department has ruled that drainage and levee districts shall be classed as civil divisions. This exempts drainage bonds from the Federal income tax.

BOOK IV

CIVIL OBLIGATIONS

CHAPTER XXXIII

THE ISSUING POLITICAL UNIT AND THE SECURITY OF ITS BOND ISSUES

The content of these chapters on civil obligations is presented primarily from the standpoint of the individual purchaser of these securities rather than of the institutional buyer. While, as a class, they are accepted as the safest of bonds, the legal technicalities which so largely determine their safety make them the most difficult to analyze. Much material which would be valuable in their presentation cannot be included within the limits of these chapters. Especially does this apply to the many differences in statutes controlling these issues.

Municipal¹ securities did not have a very wide appeal in the general security market until fifteen years ago. The low yield and the safety of these bonds entirely removed them from the speculative class. The safety of the bonds, while directly due to the state constitutions and statutes, is also the result, to a very large degree, of the efforts of the municipal-bond attorney in his codification of the law and his power to eliminate faults in the procedure of municipalities in issuing their bonds. The average layman who ordinarily makes a careful examination of all other classes of issues purchased, passes over the technicalities and accepts unquestioningly the security of a municipal bond which qualifies as a legal investment for savings banks. But though the investor has secured a bond of unquestioned safety, he might secure equal safety with a higher rate of return by purchasing other municipal issues. With tax-exemption privileges of municipal bonds under the Federal income

¹The term municipal bonds as used here includes the bond issues of all the political divisions of the state.

tax law and within the state of issue itself, individual investors are no longer disregarding the advantages of municipal bonds which possess equal safety and many of which afford a higher rate of return than those municipal bonds qualifying as savings bank investments. As a result, a closer scrutiny of the tax laws affecting them and the elements determining their safety will be made in the future by purchasers. With this general statement let us pass on to an examination of what enters into the analyses of civil obligations.

Jurisdiction and Function of Civil Divisions as Related to the Powers to Finance Themselves.—The authority of civil divisions refers here only to their financial powers, rights, and limitations. The common civil divisions possessing the authority to assume financial obligations and to issue bonds which are payable from either an ad-valorem tax or by special assessment on the property benefited are the Federal government, the state, and the civil divisions of the state; namely, the county, township, borough, parish, precinct, city, town, village, and district (*i. e.*—schools, roads, drainage, levee and bridge districts).

Of these jurisdictions, the Federal and state governments are peculiarly distinctive. Neither one of these powers can be forced to pay its obligations if it chooses not to do so. The Federal government can borrow for any purpose it desires and the states are limited only by restrictions which may involve inter-state activities as long as these powers are granted under their constitutions. Within a state's own borders its power to borrow is as absolute as that of the national government. It is true that the state can place certain limitations upon itself, but it has equal power to remove these self-imposed restrictions.

The powers and rights of the civil divisions of the state, on the other hand, have been rather definitely limited, especially in the question of assuming debt. This power is given by the state and can either be taken away or reduced by the state. Neither have the minor civil divisions the power to refuse the payment of a legal debt. If they refuse payment of an obligation, they are subject to court action, and the court can enforce the payment of any legal debt which they have assumed. The first problem then, in a study of the finances of these political

divisions of the state is an examination of the character, importance, and general powers of these respective divisions.

In geographical area the county¹ is largest, though not always the most important, of the state's political divisions. Delaware, with three counties, has the smallest number of these divisions of any state, and Texas, with two hundred and forty-five, the largest number. In area they vary from Bristol County, Rhode Island, with twenty-five square miles, to Custer County, Montana, with twenty thousand four hundred and ninety square miles. The population shows an even wider range from New York and Cook counties with their millions to some of the sparsely populated counties of Arizona, New Mexico and western Texas. In five-eighths of the Western states the counties have a population of less than 15,000 inhabitants. From one-fifth to one-sixth of the counties in the United States contain cities of more than 8,000 people. But in many of these counties the rural population exceeds the urban. This dominance of either rural or urban population has a marked effect on the bond issues of these political divisions. The presence of a moderate-sized municipality in the county may largely increase the credit of the county. Where the city includes the greater percentage of the population in the county, the city automatically decreases the amount of obligations that the county would ordinarily assume. For example, practically all police and administration expenditures would fall within the metropolitan-area of the county.

As an administrative and legislative fiscal agent, the county is quasi-corporate in character. The specific fiscal-powers are given by the constitution, statutory, and common law but chiefly by statutes. In some states there is a partial supervision of county finances by state officers, but this form of administration has been unsuccessful. The powers, on the other hand, conferred on the city governments are both more comprehensive and elastic than the rights conferred on county governments. This has normally risen out of the fact that the city has a far greater number of common interests than the county, and while

¹In the state of Louisiana, these divisions are called parishes instead of counties.

the cities have been expanding, the counties have rarely had their jurisdiction extended.

The purposes for which county expenditures and obligations may be assumed have, consequently, in most states, been quite clearly defined. This, together with the limitations placed upon the rate of assessment allowed and the amount of debt incurred, greatly narrows the expenditures that a county may make.

In administrative and legislative powers, the county is strongest in the Southern and Western states and weakest in New England, where the old town government predominates. The Middle Atlantic states divide these functions between the county and the township. This dominance of the county in the South and West has arisen out of local conditions. The Southern and the Western groups which comprise the larger part of the geographical area of the United States are, with the exception of a few industrial and commercial centers, predominantly rural. Consequently, the county government, especially in the South, has been found to be the simplest and most expedient of the minor political divisions for the performing of governmental functions. In these regions the county has had to provide for many of the improvements, such as roads, institutional buildings, etc., which are assumed by state, township, city, town, or tax districts in other regions.

The fact that the counties of the Western Middle Atlantic and Northern Atlantic group of states as classified by the United States census, together with two or three counties in the New England states, lead in the absolute amount of expenditures, should not deceive one as to the importance of the indebtedness and expenditures of the counties in the Southern group of states. The expenditures and indebtedness of a county must be considered in relation to its population and wealth, and to the expenditures and indebtedness of the overlapping political jurisdictions.

The township, like the county, is a quasi-municipal corporation created by law. Unlike the village or city, which is voluntarily created by its inhabitants, the two former civil units are formed on geographical boundaries. In area the township is more nearly equal in the Middle West and Far West, and it is

in these states that this form of political division has its highest organization. The importance of the township from a financial viewpoint depends altogether on whether it is rural or metropolitan in character. A large city will sometimes include the whole of a township six miles square. The corporate and financial power of the township is narrowly limited. In some states it has no corporate power and cannot enter into contracts.¹ Where the township has no right to issue bonds, these functions are usually performed by either a county or special tax district. The purposes for which issues are most commonly permitted are for schools and roads. In most instances the township-school district is entirely independent of the township government, and coincides with it only in geographical area.

The town system of New England, the forerunner of the township, is similar to some of the township organizations and possesses somewhat equivalent powers in the issue of bonds for local purposes. However, the creation of incorporated cities and towns has taken away from the old town system, except in the exclusively agricultural regions,² the importance it once possessed.

The political divisions which can be classed under municipalities are incorporated cities, towns, and villages, though a discussion of municipal finances often embraces all divisions of the state, including the county. The classification, however, must not be too inclusive or exclusive, for both court decisions and statutes do not exclusively follow the one or the other. But the economic significance is important. The fact that a city, town, or village is placed under the general classification of a municipality, gives no indication of its financial importance. Size, location, wealth, character of industries, volume of commerce, etc., are necessary qualifications of any general classification of municipalities in relation to their ability to issue and pay for bonds. While the general power to levy taxes and to contract debts may be given by the constitution or statute to all

¹Harshman vs. Bates County, 92 U. S. 569, 23 L. ed. 747.

²The creation of the special tax district and its powers which might well be included under the discussion of the jurisdiction and powers of Civil Divisions, are discussed in chap. xxxiv.

of these political units, the financial strength of the unit depends upon the factors referred to in the preceding sentence. What comparison, for example, is there between a bond issue of a remote village of 1,000 inhabitants in western Kansas and an issue of the city of Philadelphia; or between the street improvement bonds of a town of 2,000 in Texas and a similar issue in Worcester, Massachusetts?

Physical Resources.—The credit of a state or other civil division is largely dependent, as experience has shown, on the manner in which it manages its obligations, though both the amount and security of the debt are ultimately limited by the number of the inhabitants and the resources of the state. While the Northwestern states have been largely peopled by the sturdy races of northern Europe, the wealth of Iowa, Wisconsin, Minnesota, and the Dakotas could not have been the heritage of these states today if those people had not found rich fertile soils and abundant minerals to develop. But people themselves, in the broader sense of the term, must be considered a resource of a state. Though statistical proof has never been offered, many would assert that the colored population in some of the Southern states has had an effect on state credit, especially in certain minor civil divisions of these states.

Increase in numbers obviously must lead to greater development of natural resources followed by the growth of commerce and industry, as population will automatically be checked unless resources exist by which a people may obtain subsistence. The Pacific Coast states and the Northwestern states, for example, have paralleled their growth with an increasingly strong credit. Increased farming facilities and improved machinery in the agricultural states have effected greater efficiency. The metal refining industries were originally located on the eastern seaboard, because this was the great market for these products. Likewise the presence of wheat in the surrounding territory, together with power facilities, established the great milling industries at St. Paul and Minneapolis. The presence of water-power and the labor supply in the mountains of Carolina made possible the development of the spinning industry of the Carolinas. The discovery of iron in Alabama developed a rural ter-

ritory into the great industrial center of Birmingham, and all of these developments have to a corresponding degree increased the taxable wealth of these localities.¹

This last statement does not imply that natural resources in the narrow sense are essential as a basis of credit. Massachusetts, which has the very poorest agricultural land, has had large advantages through its geographical position. Its coast frontage gave it not only a climate whose moisture made it possible to build up a great textile industry, but the means of cheap water transportation which was so essential in the earlier days.

But all states have not been equally endowed with resources. For example, among the newer states, the Dakotas can never hope to compete with Illinois because of the advantages possessed by the latter in its peculiar geographical position, which gives it the advantages of transportation and easy access to raw materials. It is true that, where they exist, these very advantages may lead to excesses, while the state not so richly endowed will tend toward a greater conservatism. But a state with a very limited endowment of such resources, as are essential to great stability, can never have a very large margin to fall back upon in case of emergency. The ability of any people to pay their taxes to the sovereign power after their own necessities have been supplied ultimately rests on the annual surplus they acquire. It is evident, then, that no general rule can be laid down. Any statistical study and analysis must ascertain the importance that can be attached to each factor under varying conditions and combinations. Only a true historical perspective can give this.

It is important to know both the character and diversification of resources and industries in any one of the minor civil divisions of the state. Towns which are dependent upon one industry are likely to suffer most severely from periods of depression. When this one industry shuts down, there is nothing left to furnish employment. Some of the towns established in the timber regions have practically been depleted when the timber

¹The Mayor vs. Ray, 19 Wall 468.

supply has been cut. Towns dependent upon agriculture are less likely to suffer from depression and reactions than towns which depend upon any of the other natural resources, and if crops are depleted one year, the same condition is not likely to be repeated the following year. Other things being equal, the size of a city or town is an advantage in agricultural regions as well as in territory of any other character. There is also an increase in the diversification of industries with the increase in the size of the city, and this more than correspondingly strengthens the ability of the city to pay its obligations.

Financial Resources.—The strength and growth of private financial institutions are the direct indicators of the financial resources of the public. The amount of capital, surplus, and deposits of banks, and the value and character of insurance and trust companies, rather than the number of banks and the amount of policies written, are examples of the true indices of financial stability. Bank clearings may or may not be a good basis for judging a community's business. If the clearings are from states like New York and Massachusetts, they can be accepted as reliable, but if they are taken from some of the Rocky Mountain states, where clearings may be estimated on the basis of reporting national banks, or where the banks are chiefly state or private, the totals rendered are very likely to be incorrect. Debit balances, as suggested in the chapters on Market Influences of Security Prices, would be a better criterion than bank clearings because of the limited value which bank clearings now possess for indicating the volume of business under the Federal Reserve System. Insurance companies are of importance in so far as they create a market for securities issued within the state. If the insurance company is very large, a considerable part of its investments and policies will, of course, be held outside of the state.

A study of the United States Comptroller's reports reveals an astounding growth in the capital and deposits of banks in the last thirty years. The questions at once arise: Can this growth continue in all localities? What states, if any, show inflation? Has the growth been consistent or will local conditions finally force a reaction? Has the maximum point of rapid

growth been reached and will any increase be relatively slower?

The importance of the emphasis placed upon the financial strength of the smaller civil divisions in the state is well illustrated by the experience, a few years ago, of a small Middle Western city. A political element which was in control of the state census and had local real estate that it wanted to promote, succeeded in inflating the census figures. Closely following this census, bonds were issued by the city. Five years later the Federal census was taken, and it showed a large falling off in population from the previous state census. Immediately upon the publication of this fact, the holders of some of these bonds became apprehensive and the price of the bonds slumped. The issuing house, after going over the local situation, discovered that despite the fact that population statistics represented the town as having a smaller number of inhabitants than it had five years earlier, bank clearings and deposits showed large increases. The day following the announcement of this, the price of the bonds moved up to its former level, for all question, as to the city's financial stability was removed.

Other Resources.—Other resources—that is other than the right of taxation yielding revenue—of any of the political divisions in the United States, have never been large. Neither the United States nor the state governments have ever entered into an extensive control of private enterprises. Though the emergency demands of the European War instituted a temporary reversal of this policy, the control exercised was chiefly regulatory. The individualism which has become so deeply ingrained under a long continued democracy will be slow to surrender permanently any control to Federal and state governments. The immediate result of the War in many particulars, though it is too early to predict, will be a tendency to cling more tenaciously to the former type of organization. In the past the sale of public land has furnished the largest source of gross income other than taxation to both the Federal and the state governments. The lack of business sagacity so often displayed in government management has resulted in an exceedingly small return from the sale of this land. Of the land donated to the

states, two sections in every township were given for school purposes, and the policy followed has been to dispose of it as quickly as possible at a large sacrifice. Within the city limits of Chicago, for example, nine sections of land were originally set aside for school purposes. If this land had been held it would now furnish more ample funds than are provided through taxation by the city. Little remains of these former holdings. The income which will be derived from forest and mineral preserves will also continue to be relatively small.

The income from public utilities is usually put in the form of a privilege tax and not as a rental,¹ with the exception of such properties as docks, wharves, and ferries which are generally leased. The payment of a certain percentage of the net receipts of the public utility corporation is giving some municipalities a considerable income. The depression of public utility earnings (at the present writing) which has made considerable inroads in the returns cannot continue permanently, for such corporations must be enabled to earn revenue on invested capital, if additional capital is to be found for the extensions and betterments necessary to provide adequately for the community.

With the exception of water-works, the majority of the municipally owned plants have not been a profitable source of income to the municipality. The majority of the water-works operated by municipalities have been self-supporting, approximately five-sixths of the revenue from public utilities has come from this source. A number provide sufficient income to meet a portion of the interest on other indebtedness. Even though they are a direct obligation of the city, the absolute necessity of a water-system has tended to give the officers in control of the water-system the power to charge rates sufficiently high to make them self-sustaining. The precedent of custom which has demanded that water-works be self-sustaining has no doubt been a large influence in perpetuating this power.

Large property holdings which are tax-exempt—for exam-

¹While all real estate, buildings, equipment, parks, etc., are legitimately carried as assets in the municipal statement, they are not income-yielding. But who shall question the increased efficiency which a park system and play grounds contribute to a metropolis?

ple the holdings of such universities as Harvard, Yale, Cornell and Northwestern—are said to place an added burden on the community. But what of the additional income and other added wealth which these institutions and others in similar cases bring to the community? There is no instance in the case of educational institutions, at least, in which the income brought to the community has not more than offset the value of the tax-exempt privilege.

The financial condition of the state is also directly reflected in the condition of its treasury. The assets (aside from the taxing power) that offset current liabilities or fixed obligations may be in various forms. Some states carry a government school fund usually in the form of school bonds, while others hold securities either as an asset or a permanent fund for some specific purpose. These are usually railroad, or banking securities, or bonds of other states, or of the minor civil divisions of the state. Some states hold securities in projects which they have either assisted or wholly financed; these are to be paid for out of the earnings of these projects. Their value, of course, depends on the success of the project. Usually they have proved worthless.

The smaller civil divisions within the state, with the exception of a possible sinking fund,¹ rarely carry financial balances in the form of large security holdings. On the other hand, the strength of its financial institutions is relatively even more significant in a small civil division because of the extent to which it offsets its credit. In any community, large industrial and commercial enterprises are always found concurrent with any great strength in financial resources. The effect of indus-

¹For a discussion of the Sinking Fund see the chapter on Civil Debt. "In some states cities borrowing money on long-term bonds are required by statute to maintain sinking funds with investments, and in a limited number of states cities under these statutes are further required to maintain a separate fund for the amortization of each bond issue. In states without such laws a city can, at its discretion, maintain either type of sinking fund. In both classes of states an increasing number of officials are becoming convinced that it is financially inadvisable to maintain sinking funds with investments and are advocating sinking funds of the second type or the issue of serial bonds to obviate the necessity of any kind of sinking fund" (*United States Census Bureau, Financial Statistics of Cities over 30,000* [1917], p. 101).

trial depressions upon the financial institutions of a community must consequently be studied even more carefully than in the case of the state. Diversification, character, and size of industries show their immediate effect upon the financial conditions of a community.

Population.—The character, size, and growth of a community give an immediate basis for determining the possible ability of the state, county, city, or town ultimately to pay a particular bond issue. If a new community is built around a single industry which is largely dependent upon unskilled or semi-skilled workers, this community cannot offer the same security of good faith as a well-established New England city. Likewise the bond issue of a small Southern city or town whose population is chiefly colored would possess a less favorable position than that of a similar sized city of New York state.

Age which gives stability to municipalities must not be overlooked. Towns in lumbering and mining districts which have had all indications of permanency have practically vanished overnight, and needless to say, debts cannot be paid without the tax payers to pay them, as a few investment bankers in the early days of municipal loans in the Middle West found to their sad experience. Occurrences of this sort, though they are unlikely today, potentially exist in certain summer and winter resort towns.

In civil loan bond circulars, growth of population has always been used as an indicator of the security of the issue, and presumably will continue to be used. The growth of population has been so constant and rapid in this country that within conservative limits, it has always been possible to estimate the increase in total numbers. Whether immigration is checked in the future by legislation or by new economic conditions, the normal birth rate will still make the increase large, though a considerable slowing up must be expected. Equally important in the study of the growth of population are the questions of the concentration and distribution of population. And the more dependent a community may be upon a single industry, the more important does it become to know the details of the growth and movements of population.

Checks on estimates are especially necessary. The optimistic, in their desire to have sales arguments, are frequently led to overstatements concerning the growth of population. This is especially true where approximations are made between two different Federal censuses. State censuses issued by a few states during the ten year interval of the Federal censuses, school directories and city hall directories are valuable in checking these estimates. Annexations, especially in small sized cities of the Middle West and Far West states, have frequently led to wrong conclusions as to the actual increase of the municipality through growth. Any conclusions as to growth must be based upon the combined population of both the original city and the annexation. Also the smaller the civil unit, the more essential is it that these estimates be checked. After the city has passed the 100,000 mark, the error either way is not so important. A large city also means greater permanency in population and diversity in industry, and where the size of the city is a determinant, the bond issues of large cities should be given precedence.

In the county, township, and other civil districts, numbers are as essential to greater safety as in the city. As large concentration of population is possible only in cities, the location of a city in a county very materially increases the value of the bonds of that county for the same reason that the bonds of a large city are stronger securities than those of a small city. And no one can pursue the study of civil obligations far without emphasizing this distinction. Where the city in a county is of very great importance, as stated under a previous heading, a major portion of the indebtedness will be assumed by the city instead of the county, and in a few counties with such cities located within their borders no funded debt will be carried. While the net debt per capita may be as large, the fiscal administration will usually be managed more wisely. Even where the county and city are not only politically separated, but do not overlap, county administrators are more apt both to follow the policies of the city government and to seek the advice of bankers and expert counsel.

Large towns, to a small measure, occupy the same relation-

ship to the townships or districts in which they are located. In this case, however, the influence is not as marked as the influence of the large city upon the credit of the county. Greater ability in administration is more likely to be found in the guidance of a large city's financial affairs than in small towns. The town and county control from the administration side are much the same. The advantage of a town over a township is the larger population, and on this alone—other things being equal—should emphasis be placed. As with all other factors which enter into the analyses of all civil obligations, the township with the smaller number of inhabitants requires more careful weighing of other influences.

The Financial History and Integrity of the Civil Unit.—Twenty-five years ago, repudiation was still not an uncommon thing among the minor civil divisions of the state, and the conservative purchaser of a Southern, Middle West or Western municipality required an especial assurance that all legal requirements had been fully met. While not impossible, there is little probability of the repudiation of civil debt in the United States today. The early experience of unjustified repudiation growing out of wilfully created technicalities forced the revision of statutes, as well as a more careful examination by the legal counsel. And with the more effective standardization of civil bond codes and decisions this danger has been practically eliminated. Yet who would dare gainsay that the bonds of a county, municipality, or any other civil division which has never repudiated and has always promptly met its obligations are not more acceptable than those of the two well-known counties of Missouri whose local election issues for many years hinged upon these early repudiations. The past record of financial integrity and good faith, whether the experiences of half a century ago are unduly emphasized or not, has a very large influence on the acceptance of the bond issue.

Fortunately the information on the past history of civil loans, especially defalcations, has been fully and comprehensively treated. The Commercial and Financial Chronicle, which is easily accessible in all important libraries, has completely covered the history of municipal bonds since its first issue, and

gives to the diligent searcher a complete source of information. But the information contained in this monumental periodical, is referred to elsewhere, not only on civil loans but on other security issues has hardly been touched by the analyst of municipal securities.

More emphasis must be placed on the history of national and state loans, however, than on the history of the minor civil divisions of the state. The nation or state cannot be sued, a minor division can, and so even if a defalcation does occur, there is always recourse to the courts. And where benefits have been enjoyed, the courts now are prone to disregard a theoretical technicality and force the recipient to pay. This is not so with the state. Only another state has the right to sue a state and no national government can be sued. The only security then of national and state governments is "their promise to pay."

CHAPTER XXXIV

VALUATION, TAX RATE, AND VALIDITY AS RELATED TO CIVIL LOAN VALUATION

The chief source of income for a state or any of its political divisions is from taxation. But before an understanding of the significance of the tax rate can be had, the method of evaluating the property upon which the tax rate is levied must first be known. To the average person, with the exception of such investors as have taken time to investigate the financial systems of the states, the assessed valuation of the property is the same as the real value. This is true in only a few instances, and failure to realize this fact often leads to a mistaken notion of the possible income or the possible additional increased income that would be available for the payment of the interest and principal of the bonds issued by a particular political division.

The term "assessed valuation" as used in bond circulars designates the valuation placed upon the property of the community as a basis for taxation. If the assessed valuation is made at the rate of 100 per cent of the "actual market" or "fair cash value," the assessed value and the market value are the same. But if the rate of the assessed valuation to the actual market value is less than 100 per cent, obviously the assessed valuation is less than the actual market value. Consequently, unless the rates of the assessed valuation to market value are the same, any comparison of either assessed valuation or the tax rate of different political divisions is meaningless. For example, how could a comparison be made between the grand tax list of Vermont real estate, which is assessed at 1 per cent of the fair market value,¹ and Kansas² real estate which is assessed

¹*Vermont Public Statutes*, 1906, Section 560.

²*Financial Statistics of Cities Having a Population Over 30,000* (1917), United States Bureau of Census, Table 32.

at 100 per cent of the actual market value? Likewise a comparison of the tax rates levied upon the assessed valuations of these respective states would be pointless. Despite these obvious facts, which it would seem should be of common knowledge to local officials of minor civil divisions, many amusing comparisons are made by them.

Although most states require that property shall be assessed at a given rate of the "fair cash value," the methods or lack of methods in administration, entirely destroy the purpose of the law. Especially is this true where the local appraisers have jurisdiction in interpreting the meaning of the law, as they have in most states. This makes variations possible in the assessed value of the same items not only in different states but even in adjoining counties of the same state. Corporation property in one county may be carried at an exorbitant assessed value and scarcely be considered in a neighboring county.

As wide a discrepancy will also be found in the items that can be taxed, as in the manner of assessments. While, for example, Minnesota and Missouri formerly derived their revenue mainly from the general property tax, Pennsylvania, Delaware and New Jersey have no general property tax. Life insurance companies in Massachusetts pay one-fourth of one per cent per annum upon the net value of all policies in force; in New York they pay one per cent of gross premiums; but in Idaho mutual insurance companies have no special insurance tax. A great number of the Southern states have general business and license taxes that do not exist in New England. Louisiana taxes the gross receipts of its railroads, but in Delaware the tax is on the capital shares. Massachusetts taxes savings banks deposits; Colorado does not. This wide variation in the use or non-use of many items will determine the elasticity or inelasticity of the source of income for a state or any of its divisions. If the most valuable items that can be assessed are already included in the general tax list, tax expansion is obviously greatly limited. And for comparative purposes, it is equally essential in determining the status of state credit to ascertain the relative ratios of the respective items that are or might be included among the taxable items of a state.

With the multiplicity of tax legislation, every tax law affecting a particular item should be considered in relation to the entire revenue system. Though legislatures are now awakening to the evil results of double taxation, the frequency with which it still exists shows the necessity of regarding the relation of each individual law governing the taxation of a single item to the law as a whole. Where this duplication affects the more important items in the general assessed tax list, especially where the existing tax is already large or the resources and wealth are very much limited, and the important taxable items are subject to this condition or a future increase in taxation must be subject to this duplication, this factor should be given careful consideration. If the state has no general property tax, it is a potential source of income that may be used in time of financial need.

The shifting change in the listing of personal and real property—which as every one knows is absurd and unjust—will ultimately force a complete change in the basis of taxation, indications of which have already appeared. The establishment of the income tax is an example. The danger, as in all reforms, is of the pendulum swinging too far in the other direction.

It should not be assumed that a state has increased in wealth without first being sure that a large part of the increased wealth is not due to a change in appraisalment or assessment. The wealth of a state which was formerly appraised and listed at twenty-five per cent may now be appraised at par value. A comparison of the states which have increased the percentage of their appraisalment of the total taxable wealth will show some remarkable changes in the last quarter of a century. It is consequently always necessary in any comparative analysis to determine carefully whether there has been a change in the method of appraisalment.

While the revaluation and equalization by commissions or boards are generally never very thorough-going, they at least show us the tendency of the respective states and the conditions that we must guard against. It stands to reason that where revaluation varies from one year as in Wisconsin to two years in Maine, four years in New Hampshire, ten years in West

Virginia, and sixteen to seventeen in Rhode Island, there will be wide discrepancies between assessed and real valuation. In other cases real property may be subject to long interims between valuations, while personal property may be revalued every year. But even where there are annual revaluations, experience has shown that these valuations are more often open to severe criticism than otherwise, and it is only when an occasional official assumes control that anything like an accurate valuation is made. Equalization boards, in some instances, probably correct the unjust burden of certain individuals, associations, or corporations, but this has no appreciable effect on the revenue of the state or its obligations. The original statement may be revised but, as H. C. Adams suggests, "the assessments of specific properties will remain proportionately to each other as they were originally handed in." Where the state census is taken in the interim of the national census, it also makes possible a more frequent checking up of inequitable per capita distribution of taxes. If the state census also includes a relisting of all property, the results are as nearly accurate as can be expected.

In county, township, municipal and special tax districts, the exclusiveness or inclusiveness of valuation as applied to any or all of these civil divisions, will make assessed valuation large or small without any necessary relation to the value of the property within the jurisdiction. For illustration, a comparison of the total valuation of the property of a county which includes the property of a large city within its boundaries with that of a county which does not include the city's property in its own valuation has no significance. While most of the exclusions or inclusions of property in overlapping political divisions are not so marked as in the foregoing illustration, continual comparisons are made in which partial existence of these conditions destroys the value of the comparison.

In these classifications of property for assessment purposes, the city valuations—especially in Maryland, Pennsylvania, and Virginia—differ from the valuations for state and county purposes. "This difference," states the Federal Census Department, "results largely from the fact that certain classes of

property, especially that of corporations, are in these states subject to state taxation, but the valuation of such property does not appear in the report of the property taxed for city purposes. In some instances the assessed valuation of an independent division of the government of a city, such as a school or a park district, differs from that of the city corporation. These differences are due to: (1) differences in the area of the city corporation and of the independent division; for example, the school districts of most Ohio cities, the park districts of some Illinois cities, the sanitary district of Chicago and the bridge district of Portland, Me., include territory outside of the city limits, while a few school districts include only a portion of the territory within the cities; or (2) different basis of assessment, as in Dubuque, Iowa, where the city makes its own assessment of property, while the school district uses a totally different assessment of the same property made by the county."¹

Taxation and the Tax Rate.—Whether a debt is created by a state, county, or city government, the funds for the payment thereof must be raised by means of the power of these respective governments to tax. As a very limited proportion of the expenditures made by any one of these political divisions is devoted to projects that will produce revenue, the extent or limit of this power is the more important. These funds are non-compensatory, *i. e.*, they are invested for what might be called the production of a social income—public schools are maintained to train the young, roads are paved to facilitate travel, and a police department is established to protect life and property. These all yield a common “service-income,” but they do not furnish revenue-producing income by which they may sustain themselves. The power of the national or state governments to secure this necessary income by taxation and their willingness and ability to supply this income measure the strength of their security, for both principal and interest must be met by the income from taxation. While the political subdivisions of the state must secure funds to pay their debts in

¹*Financial Statistics of Cities Having a Population Over 30,000 (1917)*, United States Bureau of Census, p. 113.

the same manner, the power to do so is conferred on them by the state. Hence the powers and limitations conferred upon these divisions by the state need special emphasis.

Following all the ramifications of the powers and rights to tax "is even more perplexing than unraveling the regulations affecting debt obligations." Of these complexities, Professor H. C. Adams states: "In applying the rule that the power to tax 'acknowledges no limits,' it is necessary to distinguish between its exercise by a government recognized as sovereign, even though it be within a restricted jurisdiction, and a government which is the representative of or the agent of a sovereign government. A county, a township, or a school district, for example, is, strictly speaking, no government at all, but an administrative unit acting for a government for certain specified ends. This, however, according to the theory of American law, must find expression in the fundamental law of the State itself."¹ But it is not essential that all of these complexities be set forth, even if all of the data were available, in order for one to understand the analysis which must be made of a municipal statement.

An analysis of the tax rate as applied to the security of a civil bond issue must take into consideration: (a) the rate in relation to valuation; (b) the exclusiveness or inclusiveness of the rate; (c) the rate in overlapping jurisdictions; (d) the rate in relation to the debt-paying policy; (e) the fixed limit on the rate to be levied; (f) the levying of taxes on particular classes of property for particular purposes; and (g) the control of the rate and taxation by municipal legislation.

The nominal tax rate authorized by the constitution or statute is in itself meaningless unless it is known that it equals or is translated into the actual rate. Or the same thing may be stated in this manner; the ratio of the actual rate to the real value of taxable property must be ascertained before a comparison can be made of the tax rates of two or more states, cities, etc. As stated under the topic of Valuation, the ratio of the assessment valuations to the taxable value of property may vary from one to one hundred per cent of the market value of the tax-

¹Henry Carter Adams, *The Science of Finance* (1906), p. 307.

able property. It is necessary, therefore, that a study of the tax rate first determine these ratios, which can then be used as a common denominator.

The exclusiveness or inclusiveness of the tax rate to more than one tax jurisdiction will determine both the ability to pay and the ability to increase the rate. Usually each political division has its own independent rate, though a number of exceptions exist. For illustration, the state tax rate (nominal) per \$1,000 in New Hampshire is \$16.00 and only .96 (cents) in Ohio, or \$10.00 in Vermont and only .90 (cents) in Indiana (1912). An examination of the total net tax in these respective commonwealths shows very little difference. The New Hampshire and Vermont state rates include the tax rate for both the state and other minor civil divisions, while the Ohio and Indiana rates are exclusively state rates. Further, neither is the Ohio nor the Indiana rates, which are technically known as the state tax rates, the total that should be allotted to the states. Indiana, for example, has a special rate—exclusive of this rate—that is levied for the benefit of benevolent and educational institutions, etc. The rate for Indiana in the same year for state purposes, including the general tax of .90 (cents), was \$4.085. A general state tax as low as .10 (cents) per \$1,000 (as in Virginia in 1913) might be levied, but an exorbitant total rate might also be levied in the minor civil divisions or by special taxes. The state tax, therefore, may be no indication of the present tax burden or of the possible increased demand that might be made on the resources of the commonwealth or its subdivisions in case of an emergency.

There is a seemingly growing tendency at the present time in favor of separating state and local taxation, and designating certain properties that shall be taxed only for state purposes. Few states, however, have as yet adopted the policy of California, which by an amendment of the Constitution (1910), provides that public service corporations, banks, and insurance companies shall be taxed for state purposes and exempts "the operative property of these companies from local taxation by counties, cities, towns and districts, except for the payment of principal and interest on indebtedness existing before Novem-

ber 8, 1910." The counties depend on the general property and license taxes. Connecticut and New Jersey, with the exception of the school tax, have an almost entire separation of state and local government for state purposes. Delaware derives its revenues from corporation and inheritance taxes and licenses on various companies, but levies no general property tax. Maryland leaves all railroad property to be taxed by local governments. Though a number of states, as Minnesota, derive an increasing amount of their taxes from special or certain stipulated items, the entire separation of state and local taxes has not been accomplished.

All taxes, however, do not lend themselves with equal advantage to revenue purposes. In studying the problem of a possible increase in taxes from new sources, the amount and the policy of handling the current and contingent debts must be considered. This particularly applies to civil units within the state. An effective limitation upon the kinds of property which can be taxed will also prove an indirect, though valuable check on the amount of debt which can be assumed.

Particular care must be exercised in the study and comparison of the county, township, city, town, and special tax district tax rates, as was suggested in the study of property valuation of a particular division. Bond circulars are particularly deficient in making accurate distinction between the rate of taxation paid to a particular jurisdiction by its inhabitants, and the total tax including all the tax rates applied to the residents of this same jurisdiction. Different rates may even exist within the municipality's own jurisdiction, as is the case in some of the cities of the state of Washington.

The existing rate of the tax and the total amount of taxes paid must be examined in light of the debt paying policy of the issuing unit as well as the policies of all other units to which the tax-payer is subject. A civil corporation may adopt the policy of the early extinguishment of both funded and contingent debt, and thus the rate will be made exceptionally high for a short period. A comparison of the tax rates and the amount of indebtedness for a period will disclose any such existing policy. On the other hand, control of the state or municipal

tax rate through a limit on the tax rate, as in Georgia for state purposes and West Virginia for counties, is neither the most effective nor fundamental method of control. Massachusetts¹ while it has very carefully limited the amount of its indebtedness has no tax limit.² Any great increase in the tax rate will in itself cause public opposition and thus automatically check the increase. Fortunately this form of control or limitation is not a very common one. If the limit applies for both funded and current indebtedness, it is especially dangerous, as it frequently tempts the municipal official under the pressure of large current debts to use devices to evade this limitation.

Nearly one-third of the states, as for example California and Iowa, require that when a county, city, or other civil division makes a bond issue, provision shall be made for the levying of a tax at the time of issuing, to pay the interest payments and the principal when due. The safety of the bond is not then endangered by a cut into the general revenues for other purposes or the reduction of income by manipulation of the valuation of assets. The bond enabling acts, however, provide for the levying of taxes, and they are given complete cognizance in all courts. And as long as this power exists in these acts, there is little fear that the courts will not enforce payment.

Any very wide latitude in the increase of tax rates by a municipality is open to serious objections. The ease with which such legislation can be tampered with by politicians is alone sufficient reason for not placing too much emphasis upon this control. When the demand arises, legislation is usually forced through the city or town councils with little hesitancy and any existing legislation prohibiting future increase in rates is soon repealed.

Creation of the Special Tax District.—The Special Tax District is a voluntary quasi-municipal corporation created by the residents of a given geographical area who desire to secure certain improvements for this area.³ These improvements are

¹See *Massachusetts Statutes* for 1913, chap. 719, Sec. 12.

²For an interesting case in this connection, see *United States vs. Clark County*, 96 U. S. 211; also *Supervisor vs. U. S.*, 18 Wall 71.

³From a strictly legal point of view, these bonds cannot be included in the general classification of municipals.

financed through bond issues which are made claims against the property within the area. This indebtedness, in turn, is met by a tax levied upon the taxpayers of this same district. Even where the state at large may benefit, as in harbor improvements, the taxpayers within the district who have assumed the debt must pay it.¹

The detailed statutory requirements and scope of these districts vary with the different states. The important considerations in the creation of these districts are: the purposes; the extent of the district; and the powers and limitations in the creation and payment of the debt as authorized by the state constitutions or statutes. Unless restricted by the constitution or statutes, the taxpayers of a given area can organize for almost any purpose to issue loans for common public benefits of a district. Most commonly these organizations are for drainage, levee, irrigation, harbor improvements, sanitation, fire, power, water, road and school purposes. During the period from 1870 to 1890 a great many special assessment tax districts were organized for the purpose of issuing bonds to aid railroad construction in a particular locality. The history of this period furnishes some of the most unsavory of municipal bond repudiations.

The geographical boundaries of these special tax districts may coincide with an existing political division, such as the city or township, or they may include two or more municipalities, or they may be only a part of an existing political unit. Of the first type, the school district of the Middle Western states, which commonly coincides with the political jurisdiction of the township, is a good example. But the school districts in cities and towns of these same states may include only a part of the city and two or more districts may be organized within the city limits. Drainage, levee, and irrigation districts will not infrequently include several counties. The Sanitary District of Chicago, the most important in the county, includes a considerable area outside the city limits. The water districts of Maine, where towns are closely situated and can use the

¹Mobile vs. Kimball, 102 U. S. 691, 1c 703 L. Ed. 238; Davidson vs. New Orleans, 96 U. S. 97; Louisiana vs. Pillsbury, 105 U. S. 278, 295.

same water supply, include two or more towns. No common standard for the size or importance of these tax-districts can be said to exist for the United States at large. While a sufficient number of taxpayers are always necessary to insure the establishment of a district, the costs of financing a project vary so much that no comparison can be made. A small well-populated area desiring to build a more effective drainage system might secure it at a very small cost if topographical conditions were favorable. Whereas the inhabitants of an area covering several townships, with difficult drainage problems, if they desired to do the same thing, would find that it involved a heavy tax. The same would be particularly true of levee and irrigation districts. On the other hand, school, fire, power and water districts would be more dependent upon the character and number of the population than upon any other factor. The exclusiveness or inclusiveness of the size of the areas will, consequently, often be the determinant in evaluating the bond. This again recalls the distinction previously made between rural and urban communities, and even where the district is outside of the city limits, its adjacency to a city will increase the value of the security. A comparison of the value of the property of a special tax district with the assessed valuation of the political division or divisions of which it is a part, will reveal whether it is an urban or rural district or whether it is only a part or coincides with the unit. As the assessment of the property of the special tax district is not made independently, the method and shortcomings of American assessments already treated, apply equally well to special tax districts. The debt of the special tax district has also been referred to under the general topic of debt.

The very advantage which the privilege of organizing a special tax district conveys to a community, is at the same time a source of weakness. A rural community, sparsely populated and with considerable area of poor territory, may organize, make a bond issue, and tax itself with the equal privilege of a great metropolitan district. These conditions make the issues of the special tax districts the most complex and the most diffi-

cult to evaluate. Under the influence of a wave of popularity certain improvements are desired and a special district is organized, but the improvements fail to fulfill all anticipations. Decrease in market value of property usually results and tax burdens are increased with a corresponding decrease in the value of the security. Also the weakness of the special tax district as a civil administrative unit and its limited jurisdiction, necessitate a more careful analysis of these securities than of other civil obligations.

Legality and Validity.—Legality and validity are not necessarily synonymous terms, as is commonly believed. A bond illegally issued may sometimes be made valid by a court decision. And as stated elsewhere, the tendency of court decisions where illegal bonds have fallen into innocent hands is to hold the bonds as a valid issue.

Thirty years ago the question of the legality of a civil bond issue would have been the most important single consideration with which the purchaser of civil obligations would have been confronted. While the necessity for a consideration of their legality still continues, the likelihood of default due to the illegality of issue is indeed small. This is evidenced by the small number of repudiations which have occurred since 1900. A great deal has been written and much emphasis placed upon the repudiation of state and other civil issues, though an examination of the lists of these repudiations shows that they occurred prior to this date. Better formulated statutes, more complete and wider range of judicial decisions, and well standardized legal codifications have enabled the municipal bond attorneys to detect any legal flaws in an issue.¹ Also the certification of genuineness by a trust company, while not a guarantee, adds another safeguard. This is further insured by the attitude which the courts are now taking in cases where the funds have been appropriated and used. Where no obstacle has been placed in the way of the issuing civil corporation,

¹This would not apply to some of the old bonds of the Reconstruction Period which still occasionally appear. It need only be reiterated here that the instrument purchased should always be scrutinized.

even though its issuance has not conformed in all details to legal procedure, it is now held accountable, but there is little chance of any contest where the issue has been passed upon by expert counsel.

Where either national or state bonds are concerned, even a Supreme Court decision of legality could not force payment to the bondholder, if the Federal or state government wills to repudiate it. When state bond issues have been repudiated the defense has always been that they were illegally issued. Every bond man knows, however, that the real reason was inability to pay. Authentic legality leaves no grounds for the state to refuse payment except through repudiation. The latter is today highly improbable, especially considering the care with which such issues are scrutinized by the bond attorney.

The purposes for which county bonds can be issued are so narrowly defined that the purchaser needs to examine these certificates more carefully in relation to purposes of issue than any of the other municipal issues except special assessment bonds. The purposes for which these bonds may be issued, as designated in the Federal census, are to build courthouses, other buildings (school houses, asylums, etc.), roads and bridges, and railroad subsidies. The miscellaneous and unspecified items in county indebtedness are the items referred to above concerning which the legality of issues has been the chief source of trouble. The items of funding and refunding bonds in county issues, do not need the emphasis so much on the legality of the refunding issues themselves as upon the legality of the issues which they replace.

As all powers are delegated to the minor civil divisions of the state, the danger of the violation of technical requirements is increased. The Federal Court states: "A county is an organized political subdivision of the state. It has such power, and such only, to contract loans and to incur other forms of indebtedness as is expressly or by fair implication granted to it by the legislature of the state . . ."¹ "The full legal deter-

¹Dudley vs. Board of Commissioners of Lake County, Colo., 26 C. C. A. 32, 80 Fed. 672.

mination of a number of the minor civil divisions of the state is still problematic and it should be carefully ascertained whether the territorial unit has been created with no express plan of territorial powers."¹ If the civil division has no power to create independent contracts, any obligations assumed will have no legal authorization.² This situation of the non-existence of a civil unit must not be confused with the civil unit which goes beyond its powers in issuing a bond, and may have suit brought against it by a taxpayer for the annulment of the debt. Under the latter condition where full benefits have been received, the court will now probably hold the issuing jurisdiction liable.³

When one stops to consider the multiplicity of these civil corporations, ranging from small villages of two or three hundred up to the municipalities which number their inhabitants in seven figures, and the system under which American cities are governed, the possibility of legal entanglements is easily understood. The wonder is that there are not more incompetent officials placed in charge of the municipal finances of our towns and cities by popular vote. They are very seldom elected to office because of their understanding of municipal financial affairs and problems. The mistakes of ignorant and incompetent officials from which every municipality has at some time or other suffered, are such common knowledge that they need no detailed statement here. Too frequently these mistakes are never brought to the attention of the general public. How many readers even of these pages have ever carefully perused the financial statement of their own city? It is fortunate, then, that we are able today to place so much dependence upon an expert municipal bond attorney's rulings as to the validity of municipal issues.

All authority for the issuance of bonds by civil corporations is conferred by either constitution or statutes or both.

¹Folsom vs. Township Ninety-six, 159 U. S. 611, 16 Sup. Ct. Rep. 174, 40 L. Ed. 278.

²Harshman vs. Bates County, 92 U. S. 569, 23 L. Ed. 747; Board of Trustees vs. Battleboro Savings Bank, 106 Fed. 986, 46 C. C. A. 66.

³Speer vs. Board of County Commissioners of Kearney County, Kan., 88 Fed. 749.

Without this authority the bonds are void. Certainly issues made under a special legislative act should be avoided, as the courts are at variance in their decisions of these cases. Even the right to undertake a project might be authorized, and the civil corporation allowed to raise taxes without having the right to contract a debt.¹ If the right to assume an indebtedness is only implied "when its exercise is incident and necessary to the exercise and enjoyment of powers that have been expressly granted, the bonds issued under this power may have a basis of authoritative issue. Further, the court decisions in the interpretation of the implied powers of the enabling statutes have not always been in perfect accord." Since statutes affecting bond issues have been passed at varying intervals and often included in certain general legislation, it is difficult for anyone but an expert to be certain that he has examined all statutes affecting the bond issue. But as so often stated, even where the bonds have not always complied with all of the technicalities of the requirements of issue but the benefits have been accepted by the civil corporation, the courts have usually held the issue legal.² A brief examination of the court cases involving a violation of the authority to issue, indicates that the great majority of the violations have been issuances for projects not within the province of the issuing civil corporation. Where the powers of overlapping jurisdictions are not clearly defined, this confusion is especially likely to arise.

No specific classification or catalogue can be made of the causes of violation of authority because of the wide difference in the powers granted by constitutions. The general classification of violations of authority, under which head the major part of the court cases come, includes: lack of compliance to constitutional and statutory limitations; the exercise of assumed legal powers by "de facto" officers or governing bodies; unwarranted or irregular assumption of power; issuance without any power and usurpation of authority.

¹Ashuelot National Bank of Keene vs. School District No. 7, Valley County, 5 C. C. A. 468, 56 Fed. 197.

²Chaffe County vs. Potter, 142 U. S. 355, 12 Sup. Ct. Rep. 216, City of Joliet et al vs. Alexander, 194 Ill. 457, 62 N. E. 861.

Many states also require that not only the original bond issue, but the provision for the payment thereof shall be voted upon by the taxpayers of the municipality before the officials can authorize the bond issue. Though the two powers of issuance and payment are usually coextensive, it is wise to ascertain for a certainty that this is true of any particular security. But in the voters' authorization of the issue, the detailed and technical requirements of procedure often are violated because of the ignorance of the corporation's officials. For illustration, a few years ago a Pennsylvania village which had defeated a certain bond issue voted upon it a second time and approved it. The municipal bond attorneys found that before another vote could be legally taken upon an issue once rejected by the voters, one complete year had to elapse. The village voted one day too soon and as a result the issue was rejected by the banking house to whom the original bid was awarded. But the bank as in all bids had made it a condition that all legal requirements be met by the municipality. This may seem to many laymen like "splitting hairs," yet on the other hand it does indicate the careful protection given to the purchasers of municipal bonds by banking houses¹ of high reputation.

Public corporate bodies and officers are continually violating the debt limits of their civil jurisdiction until checked by a bond attorney. Since the majority of these violations never come to the notice of the general public, little appreciation is had of this particular service. Not only the ignorance of public officials regarding the law, but the differences in legal opinion as to what should be included in net debt, contribute to the difficulties of this problem.

The small details and technical requirements involved in the issuance of civil bonds are more often the cause of the invalidity of an issue than is any wilful act. The constant shifting of both public officials and the office staffs places individuals in charge who are inexperienced and unable to handle the duties correctly. This is illustrated by the fact that where rejections are made because of matters of minor detail in

¹See chap. xxxv, the Debt of the Civil Division.

issue, they are errors of omission. This, of course, is not true of the larger and more important legal considerations. As one prominent specialist in municipal bonds stated: "However, it is really remarkable, in view of the constant shifting of public officials, and the fact that many times they are uneducated and under political influence, how few mistakes creep into the issuance of municipal bonds and defeat their payment. I want to pay tribute to the average public official and say that so far as his dealings with us are concerned, he is more than 99 per cent honest."

The errors of issuance are varied. They cover, for example, insufficient notice of election to qualified voters. The law usually provides the length of time for such advertisement, the method, the location of polling places, etc. These same errors occur in the notices of meetings of governing bodies, city councils, etc., held for the purpose of adopting ordinances relative to the issuance of bonded indebtedness. The failure to state the rate of interest in the motion of the issuing body or the omission of the rate in subsequent documents, as well as, the granting of a higher rate than allowed by the constitution or statute, have been held as sufficient reason for invalidation. Errors in voting on such points as: time, manner, majorities required in the original corporate body, etc., are likely to be more elusive in that they are apt to develop through "piece-meal" legislation and consequently are more difficult to check. Another error, though one much less commonly found, is the failure to comply with the requirement of the price where the minimum price, usually par, is fixed by statute.

The issuance of bonds by a minor political division for a purpose not within its jurisdiction has been the cause of a considerable number of defaults in the past. Powers of issue recognized in some states are either not recognized or are prohibited in others. The divergence can usually be based upon what can be called private as distinct from public purposes. In some states the constitution has been broadly enough interpreted to include many objects under the heading of public benefits. And still other agencies which contribute to public convenience have been accepted as legitimate purposes for which

minor civil divisions can authoritatively issue bonds when not prohibited by the state constitution. In all such cases which do not come under the direct and explicit powers granted by the constitution, the surest test of their safety is a court's decision. "To the general proposition that municipal bonds, to be valid, must have been issued for an authorized public purpose, there is an exception based upon the rule of equitable estoppel. Though the enabling statutes authorize the issuance of bonds for legitimate public purposes only, a municipality issuing its negotiable bonds purporting to be for authorized purpose, but, in fact for an unauthorized purpose . . . may be estopped from denying their legality after the securities have passed into the hands of bona fide holders for value."¹ As this latter condition must result in a test of the legitimacy of the issue, the investor is not warranted in the purchasing of such securities until the test has actually been made. As long as the purpose of the issue is for the public welfare and not a violation of the constitution, or privileges of the state, it will stand the test of validity. For assurance that this is the situation in any particular case we are dependent upon the experienced municipal bond attorney.²

¹W. H. Harris, *The Law Governing the Issuing, Transfer and Collection of Municipal Bonds* (1917), chap. iv.

²For issues which were prohibited, the following are interesting: *Dodge vs. Mission Tp., Shawnee County, Kan.* 107 Fed. 827, 46 C. C. A.; *Etna Life Ins. Co. vs. Pleasant Township*, 10 C. C. A., 62 Fed. 718; *Cole & La Grange*, 113 U. S., 5 Sup. Ct. Rep. 416, 28 L. Ed. 896.

CHAPTER XXXV

THE DEBT OF THE CIVIL DIVISION

The Funded Debt.—One of the first questions raised by the investor concerning civil loans is: "What is the amount of the total debt?" The debt of any civil division must be viewed in relation to, first, the wealth possessed and ability to pay; second, past practices both in the amount of debt carried and the punctuality of payments; and third, the guarantee or assurance indirectly expressed in the amount of the existing debt. It must not be forgotten, however, that the gross amount of indebtedness is only relative to the wealth possessed and the ability to pay. For illustration, the resources in counties of a similar area and wealth may be in the process of active development in the one, but not in the other. Or the limited resources of a county may limit its possible development. This has been fully discussed in the two previous chapters.

Until the European war, neither the national nor state governments of the United States had any considerable debt outstanding. Our Federal government has been the only western nation which has made any real attempt to pay off its funded debt. At the outbreak of the European War the funded debt of the United States amounted to approximately one billion dollars or \$10.50 per capita, while the lowest of any European country was \$28.45 per capita in Russia and the highest \$159.87 per capita in France.

With probably the exception of six or eight states the total amount of the state debt is still relatively small. Rigid restrictions as to the assumption of state debt have been somewhat responsible for this, though the larger influence has been the popular disfavor with which the increase in state debt is viewed. The opposition to large state indebtedness is an inheritance of the panic of 1837 and the constitutional restrictions adopted

from 1840 to 1850. Under Southern leadership after the War of 1812 such opposition was raised against Federal improvements that the states were forced to assume the financial responsibility of internal improvements. With the payment of the Federal debt, the disbursement of the Federal surplus to the states, the removal of the deposits from the Federal to the state banks, the growth of population, etc., the states overdeveloped internal improvements. The result was the wholesale failure of these developments and the crisis of 1837-38. The stringency and defalcations growing out of this failure of internal improvements brought a very strong demand for debt limitations and restrictions. Though debt repudiations did not cease till the final extinction of the "carpet-bag" governments, the check to large state debts was decisive and for the last half century state issues have played a very minor role. But will state debts continue on the decrease while the debts of municipalities increase?

The assertion that state expenditures will tend to decrease as compared to the growth of municipal expenditures is based on the actual decrease of the state per capita debt since 1890. But the functions that the states are again beginning to assume are increasing their indebtedness for permanent improvements. The experience of the Western states in the last twenty years would seem to warrant this assumption. For illustration, state expenditures in 1902 were \$186,000,000; today they are nearly \$500,000,000, though allowance must be made for increased costs.

Beginning with 1885 the expenditures, especially of Western states, have been increased with the development of the public schools, state universities, and institutions for the care of delinquents and defectives, and departments of health, education, labor, railways, public utilities, etc. The increase of the sentiment against large state indebtedness is still very strong. However, it will not be large during the next decade, though it is decidedly on the increase. Consequently state indebtedness is not yet a relatively large factor or influence in the general investment market. This small amount of indebtedness, if present tendencies continue, is certain to be greatly increased. The condition of state indebtedness is emphasized by the fact

that sixteen states have practically no bonded debt outstanding. Six states have no funded debt of any kind excepting where the owners of small amounts past due cannot be found. Three states have no outstanding debt, if we exclude the old obligations that are not recognized by these states. The funded debt of eight states is not held by the public but by the departments in the state.¹ Kentucky might be considered by some to have a funded debt, but, "The educational bonds are not, strictly speaking, a debt of the state. They are irredeemable; the fund is inviolate . . . interest drawn by them is provided for out of the revenue placed to the credit of the sinking fund annually." Michigan also might be put in the third class as the so-called state trust fund is considered a misnomer since the interest paid on this fund for educational purposes is raised by taxation. This, of course, does not mean that these states are free from all indebtedness, for some of them have a large floating debt.

The lack of uniformity in the powers of the political divisions of the states makes any general comparison of financial data much more difficult than that of the states. This is particularly true of county debts, and any comparison of county debts, must be based upon the exclusiveness or inclusiveness of the debt creating power of the political division within the county's boundaries. This latter topic is discussed at greater length under Real and Net Debt.

The increase in the funded debt of city governments has been more phenomenal than that of any other civil division having the power to create debt. The very fact, however, that the functions which a city fulfills for the community are numerous in comparison with those of the other divisions of a state would be sufficient to account for a large part of this debt. But in the last quarter of a century, there has been a very large expansion in the duties which every department of a city has had to assume in providing for the needs of its people. In some

¹The most recent current check upon these states can be easily secured in the *State and City Supplement of the Commercial and Financial Chronicle*. With the change and increase in state financing, changes are now taking place in the attitude of states toward assuming funded debt.

instances cities have secured special legislative relief authorizing special class bonds for the purchase or development of municipally owned and operated utilities or similarly needed improvements.

In much of the agitation concerning this increase in city indebtedness, the increasing ability to pay its debts has been lost sight of. Faster than the increasing expenditures has been the developments in the wealth and income of the city. While no one can well defend extravagance—why should the investor be filled with apprehension as long as the power to pay increases? When the growth of expenditures overreaches the increase in income—then may the situation be viewed with real apprehension.

Other Debts.—A mere statement of the funded debt of a state is misleading. A large amount of floating debt, not included in the funded debt, may be carried forward from year to year, thus placing upon the political division an even more burdensome debt than if it were all in funded form. In other words, it might well be called a “permanent-floating debt.” This floating debt appears in various forms, ranging from the current receivables to the longer term warrants and the so-called interest-bearing obligations.¹ The so-called contingent obligations would also be classed under this heading.

The decision of the court is, of course, the ultimate and only safe test as to the legal position and security of either contingent issues or special assessment issues which have been questioned. In the use of special assessment obligations, most of the state courts have made them a direct obligation of the property benefited within the special assessment district. There are, however, numerous exceptions to this view. Illinois, for example, through its court decisions does not permit debts of special districts to become a liability of either a county or municipality. Kansas by statute has made them a direct obli-

¹Some of the special assessment issues also might well be placed in the latter list. The Treasury department for example does not exempt certain special assessments of districts created within the corporate limits of a city or town such as paving or sewer securities. The Treasury department on the other hand does recognize drainage, road and levee districts when they are subdivisions of the state.

gation of the municipality within which they are created, if the issuing district defaults. This gives them a decided market advantage.

During the early development of a number of counties, townships, and municipalities, the eagerness to secure internal improvements, and especially transportation, caused a few communities to guarantee either the principal and interest, or both, of the bonds of private corporations.¹ These ill-advised bonds were issued under the stimulus of the first wave of prosperity which comes to every new community, before it has adjusted itself to the slower and more normal rate of growth of later development. Many of these "paper-created" cities, some of which never exceeded a village in size, soon felt the pressure of the abnormal burden they had assumed in guaranteeing these bonds and a number were actually repudiated. Where these issues are still alive, whether the corporation continues to exist or not, they must be counted as a legitimate part of the fixed indebtedness of the issuing civil division. Fortunately these conditions seldom arise excepting in very rare instances. But despite the rare exception of these issues, some writers have been inclined to give them undue importance.

It occasionally happens that a public utility, at the time of its purchase by a municipal corporation, has outstanding bonded indebtedness which the municipal corporation assumes and expects to pay. Such bonds, without question, should be ruled as obligations of the municipality, but such procedure does not involve the odium of a municipality's guarantee of bonds of private corporations in which the city has no interest. The former is a revenue producing property of the municipality, but in the latter case neither the property nor the income therefrom accrues to the city as compensation for its guaranty. Instances of bonds issued for assistance of private corporations are rare, and do not find a ready market with responsible dealers.

¹Some authorities have made a distinction between the guaranteed or indorsed bond and the straight railroad aid. While this technical distinction must be recognized, if the former must be met by the indorser, it is, strictly speaking, a direct obligation.

The Actual Debt Per Capita.—The actual amount of the civil debt which any one taxpayer must pay is his pro rata share levied by the nation, state and all minor political divisions thereof in which he lives. A citizen of Chicago, for example, is subject to his share of the Federal, state and city indebtedness, as well as that of any other of the same twenty separate tax levying districts in which he may have property or of which he may be a resident.¹ As a consequence the pro rated share of either the national or state debt is a very small proportion of the total debt paid by the taxpayer. Considering this, it is apparent how meaningless the mere statement of the general or funded debt of a county, township, city, or special tax district may be. No conclusions should ever be drawn of the debt of any one of these civil units, unless the combined funded and contingent debts of all the tax jurisdictions to which the particular community may be subject are given.

The determination of the indebtedness of any one of the civil jurisdictions in a state can be illustrated by a discussion of the real debt of the county. The direct debt of the area included in the political division known as the county, is exclusive of the debt of all minor civil divisions included in the same geographical area. The direct debt, however, of the county may be of little significance when compared to the total per capita debt of the same geographical area as the county. Again, the funded debt of the counties of some of the Middle Western states will make a very unfavorable showing when compared with the county debts of such states as New Hampshire. A comparison of state debts on a per capita basis will be most favorable to the Western states.

The effect of the difference in the purposes for which a tax or a funded obligation can be assumed within the borders of one state is well exemplified in the financing of public roads and highways. Under the present law, counties in Mississippi

¹A constitutional amendment now fortunately provides that the debt limit of the city shall include the debt of all other civil districts within the jurisdiction of the city limits. The situation will unquestionably soon be changed after the adoption of the new constitution (now before the constitutional convention of 1920).

can issue bonds for road purposes,¹ while in Rhode Island the state finances all road improvements. Fifteen states² which have wholly or in part built roads also give either counties or other minor civil divisions the privilege to issue bonds for road purposes. All road financing in Texas is done through the county, while Ohio's roads may be paid for by any one or all of the following districts combined; namely, state, county, township, or special road district.

It not infrequently happens that a bond issue of a minor division may become a partial or indirect obligation of the county. The degree of certainty of its being a direct obligation of the county correspondingly effects not only the amount of the county's direct debt but the price of the security. Now this influence must not be confused by the uninitiated in civil finance with that exerted on the price of county securities by cities within a county. In the latter the effect is exactly the opposite to what it is in the former, tending to lower the rates of all securities within the county.

If doubt exists in this respect as to the classification of any improvement bonds, such as road bonds, a reference to the court decisions of the locality will soon indicate the certainty or uncertainty of the security holders' direct claims on the county. As these decisions are made by state courts, some slight differences at least must be expected among the decisions of different states, though in most instances it is not very marked. But in civil loans, where the risk is supposedly reduced to a minimum and a low rate of return is received, the fluctuation of even one-eighth or one-quarter of one per cent in the rate of return is of importance to the purchaser.

The difference between the total debt and the direct debt of the county is, with few exceptions, the greatest in metropolitan counties. But the direct per capita county debt of the population outside of the city, while normally larger, in a few instances is lower if the city is entirely separated politically from the county. This again suggests the necessity of a close study

¹See *Current State and City Supplement of the Commercial and Financial Chronicle*.

²*Ibid.*

of the annual tax of the county before any final deductions are made as to the importance of the funded debt.

The Net Debt.—The distinction between the direct debt of a particular civil division, and the actual debt per inhabitant to the state and its various subdivisions having been made, the net debt as distinct from the gross debt must next be obtained. As for obtaining the net debt from the financial statements of the state, the task is relatively simple.

With the minor divisions of the state, the matter is much more complicated. Lack of similarity in jurisdictions and functions and differences in the nomenclature add to the difficulties of determining what shall be included in the debt of these divisions. Having ascertained the meaning and limitations of these latter factors, the work of determining the net debt of the minor divisions presents two problems; first, what items must be included and what items excluded in the statement of a civil division in order to secure a true estimate of the net debt? Second, what debt or debts of overlapping jurisdictions shall be added or detached to obtain the total debt which must be paid by the same group of citizens? In the first case the city, town, and village are more especially affected, because of the character of the items likely to be included or excluded in the indebtedness. Particular stress should be given to the amount of floating debt and perhaps the general items of which it is composed. Also consideration should be given to such municipally owned properties as are productive of net income over the cost of operation, maintenance, etc. In the various items included in these two classifications are included the items over which the greatest differences of opinion arise, especially in court decisions,¹ *i. e.*, what shall be included in the municipal debt. When the net debt of the individual civil unit is correctly determined, it is a fairly simple matter to obtain the total debt to which any one of the overlapping jurisdictions is subject. Moreover in addition to the amount of the floating

¹*Folsom vs. Ninety-six*, 159 U. S. 611; *Fallbrook Irrigation. District vs. Bradley*, 164 U. S. 112; *Town of Darlington vs. Atlantic Trust Co.*, 16 C. C. A. 28, 68 Fed. 849. Cases in which purpose was not considered public; *Dodge vs. Mission Tp., Shawnee County, Kan.*, 107 Fed. 827; *Pleasant Tp. vs. Etna Life Insurance Co.*, 138 U. S. 67.

debt, the length of time that this debt has been outstanding should be known.

Where the property securing the obligation is self-sustaining, there seems as little justification for including it as a part of the debt of the municipality, as there is in including the debt of a privately owned public utility. If the debts of this property are deducted, it should be made certain that the property is self-sustaining. If the property is not self-sustaining, even where the court or a statute allows a deduction of any specific debt which is a general obligation of the city, created for the purpose of financing a public utility, such indebtedness should, of course, be taken into consideration in the debt statement. If this were not done, the municipal statement would be an incorrect exposition of the city's finances, as the interest on such indebtedness, or such portion as is not derived from the operation of the public service property, would necessarily be met by the levy of a direct tax on the general property of the community. Debts created for the purpose of financing city owned and operated water-service plants, electric light and gas plants are the form of funded indebtedness most often excluded by state constitutions, statutes or court decisions, as part of the debt of the municipality.

Debt Restrictions.—The restriction or limitation of civil debt is accomplished directly in three ways: (1) by constitutional restrictions; (2) by court decisions, and (3) by statutory restrictions. Any complete treatment of the statutes and court decisions of civil debt is impractical and a complete legal training is almost essential for an understanding of court decisions, so intricate are the discriminations of the law. Constitutional restrictions can be summarized with some degree of completeness and understanding.

The chief constitutional restrictions of the states may be summarized as follows: (1) The states, with a few exceptions, can raise an unlimited amount to repel invasions and suppress insurrections. States, however, have seldom ever raised funds under this provision. (2) The purposes for which the commonwealths can borrow are usually specifically stated. (3) The constitution usually regulates the issue of bonds for deficits and

extraordinary purposes, and a specified vote is also required, as in number 2. (4) The state can neither own stocks in, nor loan its credit to a private corporation, and a legislative act authorizing such purchase would be contradictory to the state constitution. (5) The legislatures are prohibited from enacting laws assuming indebtedness above a certain amount, or incurring indebtedness for internal improvements except under constitutional regulations and then for only a brief period.¹

The most common regulation found among the state constitutions is the requirement of a popular vote before a funded loan above a certain amount can be made by the state.² A few states, as Wisconsin, require a certain percentage of the total vote of the upper and lower houses. Connecticut, Massachusetts, New Hampshire, and Vermont have no restrictions of any kind on their state indebtedness. Where no restriction is placed on temporary loans for extraordinary purposes,³ it might, as has been experienced, offset the value of funded debt limitations. It does, however, relieve the embarrassment that a few states would experience if forced to raise funds under extraordinary circumstances, if the legality of the issue is to be preserved. It is undoubtedly well to have a fixed amount for temporary loans to prevent possible extravagance, but the elastic privilege of an unlimited amount when approved by popular vote for extraordinary purposes, as in Kansas, is carrying the privilege to an extreme. On the other hand, the maximum of

¹Missouri limits borrowing for temporary debts to two years [Constitution (1875), Art. IV., Sec. 44].

²Popular vote for increasing debts above a certain minimum is required, for example, by the constitutions of California, Illinois, Iowa, Michigan, New Jersey, New York, and Rhode Island.

³Delaware, Indiana, North Carolina, South Carolina, Virginia, and West Virginia have no limit fixed in their constitutions for temporary loans. Arkansas, Florida, Louisiana, and Mississippi have no provisions of any kind, and Colorado, Idaho and Wyoming have special provisions that automatically regulate the amount. All other states have some fixed limitation or special regulation of the amounts of temporary loans that may be issued. It might be said, however, that while Louisiana requires no vote it does require a constitutional amendment, giving power to the legislature to authorize the issuance of securities which are state obligations, and as a change in the constitution must be had by a vote of the people, it really operates as though the particular issue had been directly voted upon. This is true of other states.

\$50,000 for temporary loans in Oregon, for example, would not be sufficient to pay even the salaries of its officials. A few states have specific regulations as to the duration,¹ as well as to the amount of the loans.

The constitutional regulation of the duration of fixed debts has no common basis. It runs from a maximum of ten years in Minnesota, to seventy-five years in California, and "when due" in Kansas,² and South Dakota. Where amendments affecting state indebtedness have been made to constitutions, the tendency has been to increase the duration. Not a few states have avoided these time regulations by the refunding of old issues as they fall due. This is now quite possible as the period of renewals, even in regulated states, is quite flexible. A fixed as well as a moderate period of duration does have the advantage of the readjustment of the loan to new statute regulations and the changes in interest rates. The remaining important constitutional regulations are fairly uniform and space will not permit a discussion of them.

The number of states possessing constitutional limitations of municipal debt is in excess of those having legislative restriction, though increased restrictions are found in almost all states which have any form of constitutional control. In nine states this power of limitation is given over to the legislative bodies.³ In North Carolina and Tennessee, for example, the control of debt issues is given in the municipal charter. This is also true of a number of towns in other states incorporated under old charters by special legislative acts. Maryland still clings to the old archaic form of a special legislative act for every issue made,

¹The following states have specific regulations governing the duration of fixed debts: California (75 years), Colorado (10 to 15), Idaho (20), Iowa (20), Kansas (when due), Kentucky (30), Maryland (15), Minnesota (10), Missouri (13), Nevada (20), New Jersey (35), New York (50), North Carolina (30), Oklahoma (25), South Carolina (40), South Dakota (when due), Washington (20), West Virginia (20), and Wisconsin (20).

²This limit can as in some other states be fixed by the legislature and this power has always been exercised where given (Kansas, Constitution, Art. XII, Sec. 5).

³New Hampshire (Abbott's, *Laws of Public Securities*, p. 992) and Kansas (Constitution Art. XII, Sec. 5) are examples of legislative control.

a condition which necessitates the examination of each statute authorizing the loan.

The most common basis of restriction is that which limits the debt to a ratio of the assessed valuation. A comparison of the obligations of two or more states on this basis, as suggested in a previous chapter, may be quite misleading. On the other hand, as previously stated, if the assessed valuation and the rate of assessment be known, the market value can be easily computed. For practical purposes this is all that is wanted, for the check can then be made on the relative importance of the debt by use of ratios.

Professor Horace Secrist says in criticism of this standard of debt limitation that: "Constitutional restrictions based upon the assessed value of property are imposed to prevent public credit being abused. But if property is under-assessed, then the use of credit is prevented to the degree of the under-assessment even when a policy of deficit financiering is justified, and also when the debt limit in reality has not been reached when it is measured in terms of actual property value. To make the borrowing power a certain percentage of the assessed value of property answers only half of the problem, and this part in an unscientific manner. Borrowing is a necessary financial device for public corporations to employ. It is liable to abuse, however, and needs to be regulated, but regulation must not be made dependent upon the willingness or ability of local assessors to correctly or uniformly evaluate property."¹

The evil results of a too narrow or rigid limitation by constitution or statute are reflected in the forced amendments that have been necessary in order to give relief to a municipality. Within reasonable limits this over-ruling of a restriction by extending special favor may be justified, but as a general principle it is bad. South Carolina has without question made the greatest abuse in the past of these specially granted privileges of evading the debt limit.²

Refunding of municipal issues is generally not permitted,

¹Horace Secrist, *An Economic Analysis of the Constitutional Restrictions Upon Public Indebtedness in the United States* (1914), p. 87.

²See *Code Laws of South Carolina* (1912) vol. ii, p. 632 and others.

though in some states an issue may be refunded for a few specified purposes. As a general practice, however, this is neither a sound nor a conservative method of financing where the funds have not been used for revenue producing purpose.¹

One of the more recent restrictions of municipal funded debt, limits the municipality to making² issues for certain designated purposes. These purposes are now principally confined to what may be termed public affairs as distinct from individual or private corporation affairs. They include such enterprises as courthouses, county and city buildings, bridges, jails, roads, school houses, fire stations, sewers, and other forms of municipalized public utilities. It is still possible in certain states for a political division to make an issue for certain purposes, as for example, municipalities in Nebraska may issue bonds to assist railroads or other private internal improvements, not to exceed 5 per cent of the taxable property of the municipality.³ The majority of states, however, forbid issuing bonds for such purposes.

As to specific control of debt, four states limit debt in relation to the current income; Utah⁴ and Wyoming⁵ not to exceed the current taxes of the current year except by a vote of the people, and California⁶ and Idaho⁷ not to exceed the income and revenue for the current year except by a two-thirds vote of the people. Massachusetts now requires that all current obligations of municipalities, etc., shall be certified in order to avoid over-issue.⁸ This is a method of control which might well

¹Vermont is an illustration of a state allowing refunding for certain purposes. See *Public Statutes* (1906) chap. clvii.

²Along with the purpose of issue a definite restriction is sometimes put on the duration, though more often there is no definite relation between them, as is later referred to under the topic of the Duration of the Loan.

³See Nebraska Constitution, Art. XII, Sec. 2, and also Revised Statutes (1915), Sec. 5.

⁴Constitution, Art. XXIV, Sec. 3.

⁵Constitution, Art. XVI, Sec. 4.

⁶Constitution, Art. XI, Sec. 18.

⁷Constitution, Art. VIII, Sec. 3.

⁸See Annual reports on the Statistics of Municipal Finances of Massachusetts; see also Charles F. Gettemy, the New Massachusetts Legislation Regulating Municipal Indebtedness, *Nat. Municipal Rev.*, vol. iii, pp. 682-692 (1914).

be adopted by all states. Effectively administered, it should work as an automatic check to over-issue.

Like the state, the minor political divisions of the state can borrow for certain stipulated reasons set forth by state constitution or statute. The more common of these restrictions regulate: the amount of the debt in relation to assessed valuation; the tax rate in relation to debt; the refunding of outstanding issues; the purposes of issue; the relation and amount of funded debt to current debt; the duration, the payment;¹ the inclusion or exemption of the debt of revenue producing utilities owned by the municipality from the total debt of the municipality; and the referendum required before a funded debt can be made legal. In addition to this, the municipal governments are required in most instances to levy a tax at the time of the issue, sufficient to provide sums in each of the following years for the payment of the interest and principal at maturity.² Such a pledge by the issuing municipal authorities can be compelled by mandamus proceedings.

The most recent development in constitutional restrictions has been the exclusion of public utility debts as a part of the indebtedness of municipalities; the more numerous of these exclusions are debts incurred for the acquisition, maintenance or extension of public service water plants. Virginia³ has provided a most important qualification in requiring that water-plants be self-sustaining, and in addition setting aside a sufficient amount to provide for a sinking fund to retire the bonds at maturity. For greater effectiveness, provisions should be made guaranteeing to these enterprises such rates as will allow them to be self-sustaining; otherwise they put upon the taxpayer an added debt burden.

Virginia's constitutional provisions governing the original issue, amply protect the community and the investor at the time of issue, but it is during the subsequent period that these enterprises may resolve themselves into an increased burden on

¹See discussion of Duration and Payment in subsequent topic.

²New York Constitution 1894, Amended 1909, Art. VIII, Sec. 10.

³Constitution (1902), Sec. 127; see also Michigan's interesting provision for the purchase of public utilities, Public Acts of Michigan (1909), chap. 278, Sec. 26.

the community. Though the investor is fully protected by the loan becoming a general obligation of the municipality, as a matter of sound investment, the "corporation plant" should be completely maintained.

The New York amendment of 1909 to its constitution treats of these exemptions with far greater completeness;¹ "for a public improvement owned or to be owned by the city which yields to the city current net revenue, after making any necessary allowances for repairs and maintenance for which the city is liable, in excess of the interest on said debt and of the annual installments necessary for its amortization, may be excluded in ascertaining the power of said city to become otherwise indebted, provided, that a sinking fund for its amortization shall have been established and maintained and that the indebtedness shall not be so excluded during any period of time when the revenue aforesaid shall not be sufficient to equal the said interest and amortization installments, and except further than any indebtedness heretofore incurred by the city of New York for any rapid transit or dock investments may be so excluded proportionally to the extent to which the current net revenue received by said city therefrom shall meet the interest and amortization installments therefore, provided that any increase in the debt incurring power of the city of New York which shall result from the exclusion of debts heretofore incurred shall be available only for the acquisition or construction of properties to be used for rapid transit or dock purposes." Oklahoma, next to New York and Virginia, has proceeded the furthest in the exemption of the debt of self-supporting properties of municipalities. States exempting municipal public utility debt from taxation are Oklahoma,² Arizona,³ Montana,⁴ New Mexico,⁵ North Dakota,⁶ South Dakota,⁷ Utah,⁸ Washington,⁹ and Wyoming.¹⁰

¹New York Constitution, 1894, Amended 1909, Art. VIII, Sec. 10.

²Constitution, 1901, Sec. 225.

³Constitution, 1911, Art. IX, Sec. 8.

⁴Constitution, 1889, Art. XIII, Sec. 6 (Amount not stated).

⁵Constitution, 1911, Art. IX, Sec. 13.

⁶Constitution, 1889, Sec. 183.

⁷Constitution, 1889, Art. XIII, Sec. 4.

⁸Constitution, 1895, Art. XIV, Sec. 4.

⁹Constitution, 1889, Art. VIII, Sec. 6.

¹⁰Constitution, 1889, Art. XVI, Sec. 5.

Most bond issues of the civil divisions of a state must receive the referendum of the voters of the political division. Twelve states require this for all bonds before they can be issued. Seven states require this vote on issues above a certain amount. Others meet this requirement by signed petitions. The number of votes or signatures required on these petitions is from one-half to two-thirds of the number of property owners within the minor-political division who are recipients of the benefits of the bond issues.

Duration of the Funded Debt.—Lastly, an important problem in the payment of debt is the duration of the loan. No important study of the effect of duration of municipal bonds in the United States upon price has ever been made, and the difficulty of divorcing it from other influences would probably make it difficult to establish any definite conclusions. There is a wealth of material upon the whole subject of municipal bonds which has never been touched, but which we shall eventually be forced to study. The irredeemable loans formerly used by European countries have never met with favor in this country. We have always been a debt paying country; hence irredeemable loans need not be given any consideration. Maximum limits should be placed upon all loans, though some elasticity should be permitted below this maximum limit. Neither should the same duration be applied to all loans. Certain types of improvements of even the same character will vary in the extent of their lives in the same city according to the extent to which they are used. Consequently, the maximum term for these securities enacted by law should be less than the term of the improvement.

England's precedence, in this regard, is an excellent guide for us to follow.¹ An effort has been made in its regulations to make adaptation of the length of the period of the loan to the life of the utility. The periods vary from ten to sixty years and are determined by a Local Government Board provided

¹Horace Secrist, *An Economic Analysis of the Constitutional Restrictions Upon Public Indebtedness of the United States* (1914). pp. 112-115. (See also the quoted sources of this author in footnotes: Report of the Select Committee on Repayment of Loans by Local Authorities, 1902, pp. iv, v; also Appendices of this report.

with an expert staff of engineers who can correctly advise on the life and kindred problems of utilities.¹ The Ontario and Municipal Board of Ontario, Canada, performs much the same function.²

While the theoretical argument seems most convincing for the extension in the maturities of bonds on a certain class of improvements, it is doubtful whether our present form of controlling municipal finance makes this yet practicable. To leave this problem for local officials to solve is equivalent to leaving it unsolved, and to furnish the opportunity for the wholesale abuse of credit and the waste of money.³ The payment of debt also serves to increase potentially the municipality's credit.

Payment of the Debt.—The payment of civil loans is quite a distinct problem from that of the payment of private corporation debt. In the former, the equalization of tax distribution between the present and the future and the prevention of the continued accumulation of debt which will be handed on to future generations are the chief concern. In corporate finance funded debt is usually indefinitely continued by renewals and increased where corporate growth justifies. Corporate debt and interest must be paid out of revenues from operation; civil bonds must be met from revenues derived from taxation. To place an unequal burden on either the present or the future, forces the generation bearing the unequal share to pay for the privileges enjoyed by the other. To avoid this, civil loans must be paid off. What, then, is the most economical and safest

¹*The Economic Journal* (London), vol. xiv, p. 47-56.

²Statute (Ontario Province, Canada) 6 Ed. viii, chap. xxxi, see also E. G. Long, *Canadian Municipal Bonds, Synopsis of Laws Governing Issues*, pp. 4-12.

³The North Dakota State Tax Association relates this now well-known story of a fire engine in Grand Forks told in the following statement:

Original fire engine cost	\$6,000
Plus interest 35 years:	
(1) On \$6,000 at 7% for 15 years.....	6,300
(2) On \$5,000 Refunding Bonds at 6% for 20 years	6,000
	<hr/>
	\$18,300
Still due at time of this statement \$5,000 and fire engine in junk heap for 10 years.	

method by which these loans may be paid? Do any of these methods of payment have particular advantages in the payments of civil loans? Such conclusions as are drawn in the following discussion, however, the reader must remember, are not meant to apply to corporation loans.

The most common method of providing for the payment of loans is by the sinking fund. This is a fund accumulated at certain regular intervals and used for the immediate reduction of the debt or invested in interest bearing securities which are held until the maturity of the whole debt. These securities may be securities of the same issue or of other civil loans or corporation bonds. The serial method, a more recent form of payment, provides that stipulated amounts of the principal together with the interest payments shall come due on certain interest payment dates over a period of years. A number of states permit the refunding of old issues—a practice which permits payment without the raising of funds. When no previous provisions have been made for the raising of such funds, the bonds are usually refunded, especially where the bond issue is very large relative to the revenues received.

The sinking fund was originally applied to national loans and has changed little from its first form.¹ The national sinking fund as evolved originally contemplated the payment annually to the "Board of Commissioners of the Sinking Fund" of a certain percentage of the debt, usually one per cent. The interest on this fund, compounded annually, was to go to swell the fund, and thus the process of "sinking" the debt was expected to be constantly accelerated. In 1772, one, Dr. Price in England, wrote his "Appeal to the Public on the Subject of the National Debt," in which he laid down the sinking fund doctrine. His work continued to be the standard guide of financiers for the greater part of a century. Dr. Price went to the extent of advocating borrowing in order to maintain the sinking fund payments, as only simple interest was paid on

¹For modern methods of handling the sinking fund see: Park Terrell, *The American City* (Feb., 1911), p. 57; Thomas B. Frost, *The Government Accountant* (Oct., 1911), pp. 268-274; *English Parliamentary Report*, June 16, 1909.

the sums borrowed, but when the money was in the sinking fund it drew compound interest.

It used to be said—and the statement is sometimes still made—that the sinking fund has the advantage, from the debtors' standpoint, of a lower rate than the serial method of payment. There may originally have been cases where a municipality's maiden attempt at serial bond issues necessitated a higher rate being offered, but this was not true generally or was it long continued. As far back as 1886, Brookline, Massachusetts, placed its first serial bond loan of \$100,000 without difficulty at 3.65 per cent and since that time it has placed fifty-eight loans aggregating about \$3,600,000 at an average rate of 3.50 per cent.¹

The important thing in sinking funds is their management. Failures in administration have been the trouble in the past. A good share, then, of what is said against the sinking fund system turns upon the question of investment. Just how important this question may become is shown in the financial condition of the state of Massachusetts on September 30, 1913. On that date the state had \$34,674,498 in sinking funds on hand.²

Cash accumulations for the sinking fund may have the good effect of bolstering up the municipality's credit. Cash funds in a bank bring a low rate, while if properly invested they may be made to earn considerably more. Then, too, cash funds on hand in a bank may tempt officials to misappropriate, where no legal restrictions exist. Experience seems to indicate that with the national loans of long tenure payments into sinking funds have had little success.³

Because of the uncertainty of interest rates obtained, the necessary investment in securities may not produce sufficient funds to liquidate the loan at maturity or it may create a surplus. Further, when other securities are bought, it may be necessary to sell them at the maturity of the loan even though

¹A. D. Chandler, *Metropolitan Debts of Boston and Vicinity* (1913), pp. 9-10.

²A. D. Chandler, *Ibid.*, p. 8.

³E. A. Ross, *Sinking Funds*, *Amer. Econ. Rev.* vol. vii (1892), p. 395. (See also case of Riddleberger Bonds of Virginia.)

the market may not be advantageous. These objections are in a measure overcome by the practice, as in Massachusetts, of basing the computations for sinking funds on the assumption that the funds should earn $3\frac{1}{2}$ per cent annually, this being a conservative rate for the basis of a uniform computation.

Borrowing for the sinking fund is never justifiable and has often jeopardized the fund. It also adds to the debt instead of decreasing it. A few courts have forbidden the practice of borrowing to pay the fund, on the ground that it is detrimental to the municipality. The practice of borrowing is also likely to lead to greater extravagance in expenditures.

A great many of the false conclusions that have been arrived at by officials and legislatures have arisen from the idea that interest money paid by a government on its own securities into its sinking funds is income, *i. e.*, that such sinking funds are productive. "That cannot be regarded as productive property to the government which rests upon taxes levied and collected by the government. It is the taxes that are the sources of revenue and not the fund."¹

In a number of states, the municipalities are required by statute to provide for the accumulation of a sinking fund, and it is also a common practice even where it is not obligatory, to use this provision. The Federal Census Bureau states of its operation: "For the greater number of cities the sinking funds are prudently and economically administered. . . . In a small number of cities, however, the cash accumulations in the funds have been diverted to current city expenses, with the result that the so-called assets of the funds are merely accounting entries and therefore do not constitute true offsets to the bonded debt."² Even where taxes are provided, the loose accounting systems have caused the easy disappearance of these funds for other purposes.³

¹H. C. Adams, *Public Debts* (1892), pp. 244-254.

²Bureau of Census, *Statistics of Cities Having Population of Over 30,000* (1907), (printed 1910), p. 73.

³Up to April 1, 1915, the Sinking Funds of the New York Canal debt amounted in three years to one-fourth of the amount outstanding, although the bonds had an average of 45 years to mature. (Bureau of Municipal Research, No. 60, April, 1915, p. 1.)

So common have been the looseness¹ and errors with which sinking funds have been administered since their first conception that their use for civil loans must be seriously questioned, except under the most rigid control.² Under the rigid economy necessary for safety, they are expensive.

Even if the sinking fund will do all that is claimed for it, its plan of payment is more costly than the serial method. This is due to the fact that interest must be paid on the entire loan throughout its life while under the serial method the interest is annually diminishing and also to the fact that sinking fund investments, as pointed out, bring in only a low average yield.³

Certainly if the sinking fund is to be used, a single sinking fund should not be made to cover all issues. Each loan should

¹The sinking fund has easily lent itself to the temptation of misappropriation where strict requirements of the application of money belonging to the sinking fund have existed. The Consolidated Municipal Act of Ontario, Canada (Sec. 8), 1903, has incorporated a clause to protect the municipalities against these evils.

²H. C. Gettemay, Director of the Bureau of Statistics in Massachusetts, in investigation of twelve hundred sinking funds found discrepancies in forty towns and cities of \$1,794,391.58 and net surpluses in forty-seven towns and cities of \$2,855,192.37.

See also study of the *New York State Sinking Funds by the Bureau of Municipal Research* (1915), p. 277.

³Under the sinking fund the interest charge is the same from year to year while the interest charge under the serial method of payment, as Mr. Chandler states in his computation, is continually being reduced: "1,000,000 at 3% for 20 years. Comparison between Sinking Fund and Serial Bond Methods.

By the Sinking Fund method the interest at 3% is.....	\$600,000
By the Serial Bond method the interest at 3% is	315,000

Difference in interest in favor of Serial Bonds	\$285,000
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\$1,000,000 Sinking Fund requirements for 20 years, on a 3% basis, the decimal for \$1 being .038654	\$734,426
\$1,000,000 at 3% for 20 years, interest.....	600,000

Cost of loan, Sinking Fund Method	\$1,334,426
\$1,000,000 20 year Serial Bond, 1-20, or 50,000 payable yearly	\$1,000,000
Interest (annually diminishing) total at 3%..	315,000

Cost of loan, Serial Bond method	\$1,315,000
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Difference in cost in favor of Serial Bond method..	\$ 19,426
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Alfred D. Chandler, *The Metropolitan Debts of Boston and Vicinity* (1905), p. 73.

have its own sinking fund which should provide for both principal and interest payments, and all requirements covering the operation of the sinking fund should be carefully stated.

Repudiation of Debt.—The first essential in obtaining a discriminating knowledge of civil obligations is a historical perspective of civil debts. The necessity for this is illustrated by the states whose credits are still affected by the repudiation of their debts fifty and seventy-five years ago.¹ While it is highly improbable that any state or group of states or other civil division will repeat the indiscriminate defalcation or repudiations practiced fifty to seventy-five years ago, it must not be forgotten that the states (not minor civil divisions of the state) still possess this power and that, with two or three exceptions, the repudiation of state debts was always on the grounds of illegality, a claim against which the investor has no recourse.² When considering the probable future action of a state in a stringency or crisis, the only criterion we are warranted in accepting, is its action in the past. It must also be borne in mind that many commonwealths of the Union are still in comparatively early stages of development, and to classify the securities of these states with those of long tested commonwealths like Massachusetts and New York shows lack of appreciating the necessity of "seasoning" in securities. The only way in which

¹A comprehensive study of state repudiations is W. A. Scott's, *Repudiation of State Debts* (1893).

A good summary is contained in William L. Raymond's *American and Foreign Investment Bonds* (1916), chap. iii, pp. 94-139; Lawrence Chamberlain, *Principles of Bond Investments* (1911), pp. 122-138 and the *United States Census Report on State Debt* (Census of 1890).

²On the basis of the economic influences causing repudiation, the states repudiating their debts fall into three periods; (a) The defaulting in the period 1835-1845 in which Arkansas, Florida, Illinois, Indiana, Maryland, Michigan, Mississippi, and Pennsylvania repudiated, were due to either an over-extension of internal improvements or the excessive support of state banks and railroads; (b) In the second period (1845-1860) while the causes were similar to those in the first period, the specific repudiation was caused by an arbitrary readjustment of debts. This period of repudiations included California, Minnesota and Texas; (c) In the third period (1865-1895) in which the long list of Southern states is found, repudiation was largely due to a disregard of the obligations created under the "carpet-bag government" following the Civil War. These states were Alabama, Arkansas, Florida, Georgia, Louisiana, Missouri, North Carolina, South Carolina, Tennessee, and Virginia.

this "seasoning" can occur with any class of securities is through experience. This historical experience, of course, must not be confounded with variations which occur among these states in their financial position due to the stage of development and amount and varieties of their resources and industries. Other things being equal, this must always be a factor which influences the difference in state credit.

Many writers, on the other hand, undoubtedly have over-emphasized the importance of the repudiation of state debt which occurred fifty and seventy-five years ago. In a large measure, at least in some of the states, the stigma of repudiation has been lived down by the subsequent policy pursued by the state. While marked distinction must be made between wilful repudiation and unavoidable defalcations, it is radically unfair to assume that the same financial policy propagated by an over-zealous improvement party in the interests of a "carpet-bag government" will be followed by the state governments after a period of seventy-five years. But no one will deny the influence repudiation has had and still has on the credit of those Southern states where repudiation took place and no readjustment has been made. This does not deny, however, the necessity of safeguarding against a recurrence of delinquency toward all forms of obligations.¹

However, a historical study especially of county and municipal repudiated issues is instructive from the standpoint of what it teaches us to avoid. The total of municipal repudiations as compared to state repudiations is relatively small. The reason for this is easy to explain. Municipal financing in the newer and rural states of the Middle West and South had not reached very large proportions until after state repudiation was a thing of the past. With the passing of state repudiation, the attitude toward repudiation entirely changed, and it is indeed rare for a municipality to attempt repudiation—it is fatal to credit and this is now appreciated.

Of the bonds repudiated and still outstanding there is not only no effort but not even a desire to pay. And it is unlikely

¹See Legality and Validity for more complete discussion.

that these issues long ago repudiated will ever be paid. As already mentioned, illegality of issue is usually advanced as a cause of repudiation, but with only rare exceptions the fundamental cause has been the inability to pay.¹ This is revealed in the brief summary of the causes of municipal bond repudiation given by Mr. Raymond:²

"The principal causes of default in the bonds of counties, municipalities, and districts have been: . . . 1. A furor for improvements similar to that which prevailed at one time in many of our states and which led to financial difficulties at one time or another in such cities as Pittsburg, Pennsylvania; Elizabeth, New Jersey; and Superior, Wisconsin. 2. Issue of railroad-aid bonds or bonds for other doubtful or illegal purposes as in the cases of Macon County,³ Missouri; St. Clair County, Missouri; Green County, Kentucky; Taylor County, Kentucky, and Otoe County (Nebraska City Precinct), Nebraska. 3. Issue of bonds by small, struggling, or unstable communities where the property and taxing power proved insufficient to take care of the bonds, as in the cases of Syracuse, Kansas; Olympia, Washington; Middlesboro, Kentucky, and Mobile, Alabama. 4. Special misfortunes such as yellow fever epidemics in Memphis, Tennessee, and Savannah, Georgia, and the disastrous floods at Galveston, Texas. 5. Issue of bonds by municipal irrigation districts, where the inherent risk of the enterprise is considerable, such as Denver-St. Vrain Municipal Irrigation District, Colorado, Denver-Greeley Irrigation District, Colorado, and San Arroya Irrigation District, Colorado."

Projects of this latter character are, however, hardly worthy of the name municipal. They strictly belong to the speculative and promotional class of undertakings.

¹M. B. Dean, *Municipal Bonds Held Void* (1911), p. 122. This gives one of the most complete catalogues of the repudiation of municipal bonds up to its original date of issue which has been so far published.

²William L. Raymond, *American and Foreign Investment Bonds*, 1916, pp. 154-155.

³The Macon County issue was, as has been the case in other issues, compromised. And it must be frankly said that some of these communities have been sinned against as much as they have themselves sinned. In some cases owners have bought them with the full knowledge of their irregularities with the hope of large profits. This however, does not imply any excuse for the strict accountability of the municipality in compliance of the law, though both sides of the case should be known to enable one to pass judgment. (Author's comment.)

CHAPTER XXXVI

SPECIAL FACTORS AFFECTING THE MARKET AND PRICE OF CIVIL OBLIGATIONS

A great deal of apprehension has been expressed during the last twenty years over the growth of municipal indebtedness.¹ The increase of indebtedness has no doubt in some cities been out of proportion to the growth in population, though too much significance has often been given to such comparisons. As cities increase in size, costs necessarily must increase at a more rapid ratio. "It requires," states a former Ohio Commission, "but a glance at the appropriation ordinances of our cities to see that as population increases the functions of government become numerous, complex and costly. This is not due, at least in any degree to an artificial demand on the part of those who live in cities, but is due to a compulsion quite as irresistible as the forces of nature."²

That the costs of municipal government are persistently tending upward is shown by a study of the quintennial census made by the United States Census Bureau, of the cities above 30,000 population. It will be noted from the table given in the

¹The *Commercial and Financial Chronicle*, vol. cxii, p. 177, vol. lxxxviii, p. 113, vol. xc, p. 121, show sales of municipal bonds for 1892 to 1909 and vol. cviii, p. 187.

1898 ....\$103,084,000	1906 ....\$201,743,000	1914 ....\$474,074,000
1899 118,113,000	1907 227,643,000	1915 498,557,000
1900 145,733,000	1908 313,797,000	1916 457,140,000
1901 149,498,000	1909 339,424,000	1917 451,278,000
1902 152,846,000	1910 320,036,000	1918 296,520,000
1903 152,281,000	1911 396,859,000	1919 691,518,000
1904 250,754,000	1912 386,551,000	1920 670,034,000
1905 183,080,000	1913 403,246,000	

²Bulletin of the Ohio Legislative Reference Department, *Report of the Committee for an Investigation of Finances of Municipalities* (Columbus, February 3, 1915, p. 13).

footnotes¹ that these cities have had a 35 per cent increase in population from 1902 to 1917, while the per capita cost of government has increased 44 per cent and the total cost 117 per cent. This is explained by the greater number of civic undertakings of the larger cities. This comparison of expenditures and growth of cities over 30,000, is also generally applicable to other cities and towns of the United States. It is not likely that the slight fall of \$34.53 to \$33.26 in per capita cost from 1915 to 1917 will remain permanent. It is generally assumed that this is merely a reflection of the temporary check given all municipal improvements during and immediately following the War. The real test by which this growth in municipal expenditures and indebtedness should be measured, is in relation to the community's growth in wealth.²

After all, the interest of the investor in the growth of municipalities is in the effect upon the security of his bond, the permanency in its price, and the net yield. If wealth accumulation and income have increased at a faster rate than expenditure and indebtedness, the ability to pay these obligations has also increased. The strong position which municipal bonds continue to maintain would substantiate this conclusion.

The Market.—A very insignificant proportion of state or municipal bonds is ever listed or sold on the stock exchange. They are, as described in the chapter on Negotiation and Insurance of Securities, purchased in blocks by the Investment

¹(146 Cities) Net Governmental Cost Payments

Year	Total	Per Capita
1917	\$1,007,290,000	\$33.26
1915	996,061,000	34.53
1913	912,390,000	32.46
1911	863,996,000	32.25
1909	761,562,000	30.33
1907	691,071,000	29.91
1905	561,772,000	25.57
1903	514,189,000	24.74
1902*	462,574,000	22.71

(*Financial Statistics of Cities in the United States Over 30,000*, [1917] p. 17.)

(*Taken from 1912 Census.)

²The Study of the Cost of Government in Minnesota sustains this argument. Edward Van Dyke Robinson, *The Cost of Government in the United States*, *The American Economic Review*, vol. iii (December, 1913), pp. 815-830.

Banker and retailed across his counter. While these bonds may be widely distributed by the banker, they are usually deposited in safety deposit boxes as permanent holdings. Consequently little activity is ever experienced in these issues after their original purchase. That this is the case is evidenced by the large amount of institutional purchases.

The breadth of the distribution of state bonds depends a great deal upon the size of the issue; and of municipal bonds upon the size, importance, and location of the municipality. A large, well-known municipality will not only have a wider geographical market, but the demand within the municipality itself is often large enough to absorb a moderate sized issue.

Another local market is created by the preference of trustees, savings banks, insurance companies, and other financial institutions for bonds of their own state and its political divisions. This results in many institutions buying these issues. So decided is this preference that even where not limited to state issues, institutions have been known to purchase them when they might have made an equally safe investment with a higher yield. Some state bonds, particularly those for small amounts, have had a more or less artificial market owing to the fact that the state sinking fund has to be invested in state bonds. In a few cases, where states have issued bonds in a strained market, they have maintained the market by purchasing a large part of the issue for a state sinking fund. This is much like taking money from one's right hand pocket and putting it into the left. This market for state bonds, however, has never been an artificial market in the same sense as the artificial market which was created for United States 2 per cent bonds under the National Banking Law.

A study of the states which include the more important so-called metropolitan areas, indicates that the cities within certain distances of the financial centers of these areas, have an advantage over the more remote and purely rural areas in the price they can secure for their bond issues. Communication facilities, etc., as well as the size of the municipality, are all factors which enter into determining the price of the issue.¹

¹The details of this study will be published at a later date.

Why these differences in price exist in issues of the same class of bonds in these areas is often difficult to explain.

Qualifications which may safely be allowed the individual purchaser are not, however, always permissible for financial institutions in their purchases. For example, one prominent New York Savings Bank has adopted the following rules for the purchase of other than direct obligations of counties and municipalities: It purchases no road bonds except those issued by states and counties, and those issued by municipalities of a certain size. This rule is also followed in the purchase of paving, sewerage, drainage, and levee bonds. If the bonds are issued by a special tax district a guarantee of the city's complete responsibility for these issues must be contained in the statutes. All paving bonds, as well as other special improvement bonds must come well within the life of the improvement. All paving bonds, for example, must not be more than ten years in duration. Bonds issued by mining towns, or towns dependent on one industry, are accepted only in very rare instances, and a school district must be within city limits to have its bonds considered. Debt limitations rather than limitations on the tax levy or rate are given favor. Debts must not exceed 10 per cent of the actual valuation of property, and assessment of property values of one thousand dollars per capita is considered adequate.

A number of writers continue to place great emphasis on the extent to which repudiations of the past influence the price of civil loans today. No doubt these repudiations and especially such notorious instances as that of St. Clair County, Missouri, continue to exert some influence on the price of these securities, but not as some writers would have us believe to the extent of being the dominant influence in determining their price. When we consider how different are the present day conditions that must affect the price of bonds issued by Massachusetts or New York, and Tennessee or Alabama, we realize that there is little foundation for most of the sweeping assertions made except, of course, in the case of the old repudiated bonds themselves.

Protection to the Investor in Certification.—The investor in

securities needs special protection as to the genuineness of his bond instrument, and the validity of the issue. As regards the first, the trust company's certification¹ of the genuineness of the instrument gives protection to the purchaser against forgery. While this latter is a good thing, it is not considered essential by many bond houses. In a great many instances registration by the State Auditor is compulsory.² As to the second, while the bond attorney has reduced the danger of invalidity to a minimum, there is never an absolute guarantee. As a result it is often essential to seek the court's interpretation, as frequently because of faulty legislation, as for the errors of officials in issuing bonds. This legislation is termed faulty in the sense that, had the legislation been more accurate or definite, the error in issue would not have been made. Both constitutional and statutory law still reveal a good deal of confusion in the differentiation of economic and legal principles. A growing recognition of this essential distinction is now apparent, and with it, a number of the early difficulties in issuing, experienced because of faulty legislation, are being corrected in the revision of municipal bond laws.

Where small legal technicalities and economic principles or principles of justice conflict, the courts, as previously stated, have recently often tended to evade these technicalities and made their decisions on the sounder grounds of economic justice. The lack of compliance with such technicalities as proper advertising or voting and even limitation of debt has been set aside by the courts³ on the ground that the funds have been

¹See Chapter viii, Registration, Transfer and Assignment of Securities.

²When definite recommendations are advanced in regard to certification, one is confronted with great differences of opinion among bankers. Many bankers feel that the records of the local issuing unit are sufficient safeguard.

³W. H. Harris, *The Law Governing the Issuing, Transfer and Collection and Validity of Municipal Bonds* (1917). See index for numerous illustrations. The well-known attempt of the mayor of Atchinson, Kansas, to force the refunding of old bonds yielding 4½ to 5 per cent into 4 per cent bonds at par and his refusal to pay off the maturing issues is one of the best recent illustrations of a court's enforcement of justice. The court required the city to levy a tax and pay the bonds. *Levison vs. Finney* No. 18, 934 Supreme Court of Kansas. (This case never came to a final hearing.)

used and the benefits received, and the issuing political division, therefore, should be held liable and taxes be levied to pay off the obligation.

A few states have adopted methods of certifying the validation by a guarantee of the validation of the bond issues. Certification of the validation of an issue though not a complete corrective of the present short-comings of financing civil loans, especially municipals, is a long step forward. Like all reforms, this one is slow in developing, and no definite form of procedure has as yet been adopted, in the methods of certification.

Some of the Canadian provinces have dealt most effectively with the certification of civil loans. While the administration of certification is vested in different bureaus or departments of government, the principle involved is the same in all cases. In the Province of Ontario, the Ontario Railway and Municipal Board; in the Province of Manitoba, the Municipal Commissioner; in the Province of Alberta and Saskatchewan, the Minister or Deputy Minister of Municipal Affairs; in the Province of British Columbia, the Inspector of Municipalities; in the Province of Nova Scotia, the Commissioner of the Municipal Sinking Fund, and in the Province of New Brunswick, the Auditor General, have the power to certify municipal loans.¹ These laws which have worked with admirable success and have had a perceptible effect on lessening the cost of financing these issues are worthy of emulation.

Long before any very serious thought was given in the United States to the state's certification of its own municipal loans, North Dakota adopted (1889) a constitutional measure which requires that the bond issues of the state or its political divisions shall be certified by the State Auditor "showing that the bond or evidence of debt is pursuant to law and within the debt limit."² Likewise, the bond issue of a minor civil division to be made valid, "shall have indorsed thereon a certificate

¹E. G. Long (member of Ontario Bar), Pamphlet on *Canadian Municipal Bonds*, a synopsis of laws governing issues (published by Brent Norton & Co., Toronto, Ontario).

²Constitution of North Dakota, Art. XII, Sec. 187.

signed by the county auditor, or other officer authorized by law to sign such certificate." With this certification no contest can be made of the validity of the issue, though it has no effect on the power of the state's authority to resist the payment of any debt, if it wills, *i. e.*, its power of supreme sovereignty is not overcome by its own constitution.

The statutes of Texas¹ require the approval of the Attorney General, and no bonds can be issued without his approval. The latter law goes into greater particulars as to the detailed evidence of the right of issue to be presented to the state official than does the North Dakota requirement of certification. In this respect the criticism previously directed against the lack of the economic justification of the bond issue can to some extent be forced upon the issuing political division by state officials, but it is still quite incomplete.

Similar clauses requiring certification or approval of minor civil division bonds have been included in the state constitutions of Kansas,² Nebraska,³ and Oklahoma,⁴ and the statutes of West Virginia⁵ and Colorado⁶ (applies the certification to refunding issues of municipalities), New Jersey limits its validation to school bonds, which must be passed by the Attorney General of the state,⁷ and no question of validity can be raised "after the lapse of twenty days from the first publication of the ordinance." North Carolina,⁸ whose law is similar to that of New Jersey, limits the period of protest of validity to thirty days.

The statutes of the state of Georgia⁹ have gone further than those of any other state in giving the power of reviewing a municipal loan.¹⁰ After a municipality has approved of the bond issue by vote, the Attorney General files all the evidence

¹Texas Acts of 1895, p. 1894; Acts 1901, p. 16, Revised Statutes Title XVIII, Art. 619-625.

²Kansas, General Statutes for 1915.

³Nebraska, Constitution, Art. XII, Sec. 2.

⁴Oklahoma, Constitution, Art. X, Sec. 29 (1907).

⁵West Virginia, Statutes 1917, chap. lvii.

⁶Colorado, Statutes of 1909.

⁷New Jersey, The Pierson Bond Act, 1916.

⁸North Carolina Public Laws, 1917, chap. cxxxviii.

⁹Georgia Acts, 1897, p. 82, Code of 1911, Sec. 445, 457.

¹⁰Sustained by Supreme Court of State December 1, 1908.

pertaining to the issue with the Clerk of the Superior Court together with a petition asking for its validation.

Massachusetts¹ has made use of the certification in an entirely new way by applying it to current or floating loans of the municipality.

The Purpose of Issue vs. Market and Price.—No very complete study has ever been made of the effect which the purpose of the issue has on either the validity or market price of civil bonds. Not only the enormousness of the task but the complexity of the problem has been a serious obstacle to its undertaking. It is hoped that some large municipal bond house will some day undertake it as a contribution to the science of investment bonds. The different purposes referred to here should not be confused with the differences existing among the same classes of issues made by the various civil jurisdictions. For example, on the face of it, a bridge bond issued by a county should sell at a higher price than a bond issue for the same purpose issued by a special assessment district. But why should a difference in yield exist between a bond issued by a township for a school building and one for roads if both bonds are a general claim against the township?

Differences in the powers and the claims granted by constitutions and statutes to an issuing political unit will explain many of these differences in prices, but by no means do they account for all those slight fractional differences in return which are of such importance in the purchase of the highest grade securities. Again, it is obvious why there should be a difference in price between serial payment bonds and special assessment bonds, due in a single payment, or why a difference in price should exist between a special assessment and a county bond. But why should a difference exist between issues which hold the same claim against the county?

One explanation which accounts for and is the reason for the lack of any extended and critical examination of the varying prices of municipal bonds, is the fact that they are

¹Massachusetts, Acts 1910, p. 616; Amended 1912, chaps. xlv and xlix. Also Acts 1915, chaps. lxxxiv and cclxxxv.

subject to the wide and varied influences of the money market, are distinct from the so-called internal influences. As stated in the chapters on Market Influences, the highest grade bonds are the most sensitive to any changes of market. These changes, of course, are not the large variations in prices normally thought of in the speculative market. They are very slight, often affecting the rate of return only fractionally, but they are important, nevertheless, as a specific rate of return is frequently the determinant in the purchase of high grade investment securities.

Denomination and Duration.—Civil obligations come in denominations as low as \$25, though the more generally accepted denominations are the \$500 and \$1,000 coupon, registered and interchangeable bonds, but all three may not be found in the same issue or the same state. Larger denominations which necessarily have an inactive market are usually registered.

The duration of state bonds varies from six months in the temporary loans of Louisiana to the century bonds of the state of Virginia. The average duration, if an average can be said to exist, is about twenty-five years. State bond issues until ten years ago were very few. This condition, as pointed out earlier, has changed, as, for example, large and relatively frequent issues, have been made for roads. New demands are consequently beginning to appear for changes in constitutions and laws affecting state issues. The majority of the regulations affecting the details of state issues are those of an earlier period.

Of the long termed municipal securities the range in duration of township, county, city and town bonds is from one to forty years. Securities issued on the serial plan are from one to twenty-five years. This range in duration is also true of special assessments, with the exception of special assessment issues in large cities which range from one to ten or fifteen years.

The majority of laws regulating the bonds issued by the states require a sinking fund. This is true in some instances even where the local governments of the states are required to use the serial form of payment. The costliness of this method of financing has already been spoken of and no further reference need be made to it. Among the older states, Maine and West Virginia require the serial method, while one

or two other states allow a choice of either one. All the bonds issued by New York State from 1890 to 1902, except the canal bonds, were serial bonds. Sixteen states have provisions for sinking funds but have accumulated no sinking funds. In some instances there is no need of a sinking fund as no debt is outstanding. Only two of the Southern states that have sinking fund provisions have accumulated any sinking fund. The most common regulation for the accumulation of a sinking fund is the collecting of a definite amount per annum, as in Ohio, or a given rate of mills per dollar of tax as in Arkansas. Montana provides for six sinking funds from the proceeds of land sales. New Jersey, though it has only a very small debt, goes to the extent of providing that the sinking funds may draw on the state treasury temporarily for deficiencies. California accumulates a sinking fund from fees paid to the Harbor Commissioners, and invests the proceeds in United States bonds. These illustrations are indicative of the lack of uniformity in these state funds. Even the amounts are of little significance at the end of any fiscal year, as the fund may be in several different forms which are not usually indicated in the state reports. The tendency in the municipal issues of the last ten years, as pointed out under the topic of Sinking Fund vs. Serial Payments in the chapter on the Civil Debt, has been toward the adoption of the serial payment plan. In this, the only important requirement is that the retirement of bonds created for improvements, such as road and paving bonds, shall be well within the life of the improvements. In relation to the serial payment plan, it might be added that important dealers in municipal securities are almost uniformly in favor of serial payment and have done very much to induce communities to change their method of financing in this respect.

The refunding privilege which is not ordinarily used for civil obligations has been used by a few municipalities. In some states this practice is denied by law, and as before stated, it is a serious question as to whether it should be allowed in municipal financing. In states where some of the early issues of very long duration, and the 6 and 7 per cent irredeemables of the seventies and eighties are found, the refunding privilege

makes it possible for the municipality to take advantage of better market rates. If the length of municipal bonds were reduced, this advantage would be at least partially offset, and a check would exist against municipal extravagances.

Bonds subject to call may be called in whole or in part upon any interest payment date. Where callable privileges are practiced, the procedure is followed throughout the locality or state. This privilege gives a municipality the advantage of refunding an issue in that it can retire an outstanding issue which carries a high rate. The call feature on municipal bonds, however, is frowned upon by municipal bond dealers. The feeling is that the safest policy for a municipality is to adhere to a rigid final retirement of an obligation. If call features are attached, the present strong structure of municipal financing will be open to possible abuse by politicians.

The successful experience of the Federal government in its issue of postal savings bank bonds of small denomination, as well as the Liberty bond issues, has emphasized the existence of an extensive field for investment funds which has been little cultivated in this country. Once our machinery for the distribution of small denomination bonds is perfected, eliminating the present obstacle of high costs, this market for municipal bonds of small denominations should have a very rapid expansion. The limited knowledge of municipal as compared to Federal bonds possessed by the group of people to whom these investments should appeal, can easily be remedied, and a permanent popularity, such as is necessary in order to establish a permanent market for small denominations, can be established for these loans. This is particularly true of civil bonds, because of the small margin of profits realized by the banker underwriting the issue. Their profits have been made possible by the sale of municipal issues in large blocks.

Civil Loans as Collateral—Their Convertibility.—One of the necessary requirements of a high grade security is that it be acceptable as collateral for loans. Civil obligations, as a class, are not excelled by any other class of securities either in the amount of the loan or the interest paid for the loan. To large investors this has been a particularly desirable feature.

The functions of commercial banks make it necessary that their investments be particularly safeguarded as to safety of principal and that they possess, as well, a very high degree of convertibility. These funds are invested for the purpose of creating a reserve, which, in case of emergency, can be readily liquidated and drawn on to keep the reserve fund of the bank at a normal level. Next to two named discount papers no form of securities fulfills the requirements of this secondary reserve as well as do civil obligations.

While convertibility is not necessary to the same extent with savings banks reserves, and even less so with those of insurance companies, safety and stability in price must be had. Savings banks, though they are from time to time forced to make a large liquidation, normally carry most of their funds in permanent investments, as these bring the largest returns. State laws have as a consequence laid down fairly definite requirements for the investments of savings banks and insurance companies. Some states have even gone to the extent of requiring that the investment be in local civil bonds of the state. Notwithstanding the serious objection to a statute of this character, civil obligations, as a class, have fulfilled these requirements more fully than securities of any other class.

In all of the Federal government's dealings with national banks, state and municipal bonds, certificates and warrants, after Federal bonds, have always been accepted as the most desirable securities for deposits of government funds; and a wide acceptance of state and municipal bonds, as securities for emergency currency was made under the former Aldrich and Vreeland statute. Though the Federal Reserve Banking law has changed depository requirements, the law still requires for particular purposes that Federal, state, and municipal bonds be offered as security.¹ These bonds also find a market through their acceptance as collateral under the Federal Farm Loan² Act and Postal Savings Acts.³

¹The Federal Reserve Act as amended (1920), see particularly Sections 12-18.

²Federal Farm Loan Act, Section 6.

³Amendment to Postal Savings Bank, Section 2.

Another use of the Federal bonds, discussed more completely in a subsequent chapter, is the employment of the two per cents as security for national bank note circulation. Under the Federal Reserve Act, the national banks can continue the circulation of their bank notes on the basis of the regulations of the old law, or if the national banks give up their privilege, a similar one can be exercised by the Federal Reserve banks.

Tax Exemption.—Prior to the entrance of the United States into the European War all United States bonds were tax exempt, and the exemption of the principal of the bond from taxation still continues where an income exceeds the amount privileged to exemption under the Federal Income Tax Law. The return from Liberty Loan issues, under certain conditions, is subject to taxation.¹ This limited exemption privilege on all but the First Liberty Loan 3½s and 3¾s as shown in the fluctuation of the market price of the Liberty Loans, has had a marked effect in the price of all these issues:

“This change in the total tax exemption of United States bonds is, no doubt, the result of the movement started by those who have seriously questioned the exemption of civil bonds as a class. While the Federal government might tax all future bond issues directly or make them subject to the income tax, it cannot tax the bond issues of the state or any of its minor civil jurisdictions. . . . The consensus of opinion of practically all of those attorneys who may be regarded as experts on questions of Constitutional Law is that the Federal government is without power to legally impose taxes, either directly or indirectly, on the income from obligations of states and their subdivisions and that the various decisions of the United States Supreme Court indicate clearly that if that court is called upon to decide the matter, . . . it would declare such legislation (to tax municipal issues) unconstitutional. Aside from the legality of such action is the fact that the Sixteenth Amendment, which provides the authority for the Federal Income Tax, as it now exists, was ratified by the states with the distinct understanding that no such power was sought or intended; and it is therefore clear that the Federal government, if it desires to impose such taxation, should secure the authority for the

¹For the details of the tax exemption privileges allowed on all Liberty Loan issues, see the table of C. F. Childs & Company, of Chicago, in Appendix C.

same through the medium of a properly ratified amendment, clearly setting forth such power."¹

While this statement, in light of the decisions of the Supreme Court, seems to be beyond all dispute, is an amendment to our Federal constitution requiring the taxation of the bonds of all civil divisions likely within the next decade? A considerable agitation for a more general taxation of bond holdings developed in certain quarters during the War, and should this agitation continue and grow, it will command immediate attention and consideration.

Development of this agitation for the taxing of all civil loans is interesting in light of the fact that there has been a growing tendency the last fourteen years to exempt especially municipal bond issues from taxation. With the exception of the statutes of three states, all the present exemption statutes, granting complete exemption to municipal bonds of the issuing state, have been passed since 1905 and the greatest increase has been since 1910. But should this agitation for taxation continue, it must not be forgotten that there is every evidence in the application of such a tax that the price of the security must be effected or the municipality pay a higher rate of interest. With securities yielding a low rate of return this is of special significance, as the most important purchases of these securities have been made by individual investors who buy in large amounts; and since income taxes are levied on a progressive rate, the result is apparent. In some states, as mentioned in the chapter on the Taxation of Securities, there is a registration through which, upon payment of a reasonable tax, the securities are exempt during their life, regardless of ownership.

Territorial and insular bonds have enjoyed the same rights of tax exemption under Federal law as Federal bonds in the territory of the United States. The municipal territorial bonds, concerning which legal opinion has differed as to their taxabil-

¹Report of the Committee on Municipal Securities (Howard F. Beebe, Chairman) of the Investment Bankers Association, *I. B. A. of A. Bulletin*, October 1, 1918, vol. vii, No. 2, p. 24. Also see *Pollock vs. Farmers' Loan Trust Co.* 157 U. S.

ity, in a recent case have quite definitely been placed in the non-taxable list.¹

Other exemptions under Federal law are the bonds of the Federal Farm Loan Bank, the Joint Stock Land Bank² and the War Finance Corporation Bonds, the latter being only a war emergency corporation. The character of the bonds of the two former institutions has been discussed at length in a previous chapter. State bonds are likewise exempt from all Federal taxes and generally are made exempt by the state. This exemption, however, does not extend beyond the political borders of the state unless, as is not often the case, specifically allowed by the statutes of other states.

Of the minor civil tax groups those most favored are the city, town or village. Seventeen states³ practically exempt all municipal issues, and five which have no constitutional or tax law affecting municipals, have ruled that municipals are tax exempt.⁴ Other states exempt municipals under special conditions.⁵ For illustration, New Hampshire and Wyoming exempt municipals when held by citizens. South Carolina exempts school and municipal bonds and other issues by a special legislative act. Vermont allows exemption to certain specified issues with a rate not over 4 per cent. West Virginia allows exemption only to issues held by banks. In Virginia local authorities may exempt for particular purposes. "All bonds issued by Pennsylvania municipalities, counties or school districts in Pennsylvania are subject to a state tax of four mills which is

¹Farmers Bank vs. Minnesota, 1914, 232 U. S. 516, 34 Sup. Ct. Rep. 354.

²See chap. xxxv.

³Alabama, California, Connecticut, Georgia, Idaho, Indiana (certain issues are limited as to rate), Iowa (banks not allowed to deduct from shares), Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, Washington. (*Commercial and Financial Chronicle, State and City Supplements* for 1919.)

⁴According to the opinions of state attorneys rendered to the *Commercial and Financial Chronicle* cited in the supplement referred to above, the following states—Delaware, Nevada and Utah—exempt all municipals. To this list also should be added the territorial and municipal issues of Arizona and New Mexico.

⁵*Commercial and Financial Chronicle, State and City Supplement*, 1919. (The detailed references to the statutes have not been cited, as they are so easily available in this standard publication.)

paid by the political unit issuing the bonds and deducted from remittance of interest to the bond holder unless the bonds are issued 'tax free' when the municipality itself assumes the tax." With the modifications which are continually being made, especially where partial exemption rights exist, the text of the statute should be carefully scrutinized. Unless court interpretation has been made, the assumption of this privilege may be open to question. A subsequent denial or withdrawal of a privilege already accepted or exercised would have more than a relative influence in the depreciation of the price of the bonds.

Any exemption lists or special laws affecting the taxation of securities of a state and its minor civil division soon become obsolete. The lists cited are chiefly made to give the reader some appreciation of the extent of these exemptions. Prior to 1905 only seven states granted complete tax-exemption to the securities of their minor civil division. Since this period there has been a decided tendency toward exemption from state tax. Whether there will be a reversion in the next ten years, as already suggested, back to a taxing of these securities is still problematic.

CHAPTER XXXVII

UNITED STATES GOVERNMENT BONDS

United States government bonds, prior to the European War, were purchased almost exclusively by a few ultra-conservative investors and national banks. The return on these bonds was too small to attract the average purchaser of investment securities. The greater part of the national bonds were held by the national banks, it being possible to use them as collateral to secure national bank notes, otherwise known as "circulation." In 1914 approximately seven-ninths of the outstanding United States bonds were held by national banks and deposited with the United States Treasurer as security for national bank notes.

The Liberty bonds issued during the European War, however, changed the investment position of the United States bonds. Because of the amounts to be raised, higher rates of return had to be offered to secure a wide distribution. It is, however, well known that the appeal to patriotism in the nationwide campaigns for the Liberty issues was responsible for their wide absorption. The higher nominal rate and the even higher net yield resulting from the depression of the price of Liberty bond issues following the close of hostilities, together with the tax exempt privileges, made these issues particularly desirable to large investors. As a consequence, the greater part of the Liberty issues were transferred within the course of a very few months into the hands of large investors. But while the greater part of these securities so widely distributed during the period of and immediately after the War have been transferred to the larger investors, United States bonds will continue to have a much wider investment market among all private investors.

Summary of the History of the United States Bonded Debt.
—When Alexander Hamilton became Secretary of the Treas-

ury under the new government, he found an empty treasury and no credit abroad. But with the authority provided under the constitution, Hamilton negotiated small loans from one of the few large banks to pay the actual running expenses. Congress also provided for an issue of securities—then called stock after the English practice—of about \$60,000,000, of which \$12,000,000 was to be applied to foreign loans and \$21,500,000 to take domestic loans. The total debt assumed by the new government was \$72,775,895, of which \$40,256,802 was the debt of the Colonial Confederation, \$12,556,874 loans from foreign governments and \$19,962,219 debts of the respective states. The government debt prior to the War of 1812 fluctuated to its high point in 1804 when it totalled over \$86,427,120. The most important loan during this period was the \$13,000,000 issued in 1803 for the Louisiana purchase. The loan negotiated prior to this in Holland in 1798, at 8 per cent, had the highest nominal rate ever paid on a United States bond issue. But despite the handicaps of the new government, the funded obligation under Hamilton's Sinking Fund policy had been reduced by 1811 to \$45,000,000. In 1814, however, the sound financial structure which Hamilton had erected was almost swept away and private credit was not less demoralized.

During the War of 1812, twelve separate loans were issued under no very definite financial policy. Rates of these loans varied from 5 $\frac{2}{5}$ to 7 per cent. During this period a distinction was made for the first time between a government bond and a treasury note, and purchases of previous issues were convertible into subsequent issues which possessed more favorable terms. The effect of the latter was to force a lowering of security prices, and as a result some of the later loans sold at a discount from 12 to as low as 35 per cent. The total loss to the government in discounts approximated \$35,000,000. By January 1, 1816, the debt had increased to a total of \$127,334,933. But during the next twenty years this debt was paid off and a surplus of \$28,000,000 was accumulated, largely from the sale of lands, was distributed among the states.

The next important episode in this history was the panic of 1837 which tied up the government funds in banks and so

depressed business that the important sources of revenue were cut off. This led to a number of note issues which had not been fully retired when the Mexican War of 1847 again augmented the debt of the country. By the end of 1860 the gross debt of the United States had increased to \$87,718,660.

Following the opening of the Civil War almost every available form of credit was used to secure funds. Interest rates varied from the non-interest bearing demand notes to rates as high as $7 \frac{3}{10}$ per cent. Though the average nominal rate was 6 per cent the net yields on these bonds were much higher, as a premium existed on gold.

The bond issues after 1862 followed one upon another in such large numbers and variety that to follow them in detail would make too long a treatise for this chapter. So complicated was the debt of this period that only the expert can understand it. At the close of the War the net debt was \$2,758,000,000. A large part of this was in short term paper which was overdue. Less than one-half was funded; \$26,344,000 was in fractional currency; and \$433,160,000 in United States legal tender notes. The largest part of the funded debt was in "fiftentys." "Only one-ninth of the debt ran in any contingency longer than two years. Eight-ninths of it consisted of transient forms issued under laws made up to a great extent of incomprehensible verbiage giving unlimited direction of the mass over to one man and expressing in the aggregate nearly one hundred contingencies of duration, option, conversion, extension, renewal, etc.¹ . . . The interest bearing debt consisted of loans bearing five different rates of interest and maturing at nineteen different periods."² Congress had yielded to the seemingly easiest method, a common war policy in the past, namely the issuance of short time notes and cheap currency and had avoided the most difficult one that would retain the credit of the nation, the increase of taxes.

When George S. Boutwell assumed charge of the Treasury Department in 1869 a part of the public debt was soon sub-

¹Davis Richard Dewey, *Financial History of the United States*, p. 333.

²*Ibid.*, p. 332.

ject to call. He at once formed a plan to refund the debt at lower rates, a policy which was also strongly demanded on the part of the public. He argued that European nations were borrowing at lower rates and that these high rates paid by the government created an unjust competition with private industries for capital. The refunding of the debt was accomplished under the Refunding Act of 1870, which authorized the borrowing of \$500,000,000 at 5 per cent for ten years, \$300,000,000 at $4\frac{1}{4}$ per cent for fifteen years, and \$1,000,000 at 4 per cent for thirty years. These issues were not to be sold for less than par, and principal and interest were to be paid in "coin." This Act together with the Act of 1871 and the two Acts of 1874 and 1875, which supplemented the Act of 1870, determined the character of our debt until the Spanish-American War.

Considerable difficulty was experienced in marketing these first issues because the government had taken no positive step toward the resumption of specie and the Inflationists were growing in power. There was also considerable disagreement over the use of the word "coin" instead of "gold" in the Act of 1870, which became of greater importance in the silver agitation of a subsequent date. But with the passage of the Resumption Act of 1875, and the settlement of the question of tax elimination, the national credit was well established. The 4 per cent bonds rose to a premium of 30 per cent and the advantage to many national banks who were original holders was such that they withdrew their circulation privileges under the National Banking Act in order to market these bonds. The government within thirty years was thus able, because of its credit, to borrow upon a $2\frac{1}{2}$ per cent basis. In twenty-seven years the debt was reduced from \$2,756,431,571 (September 1, 1865) with a rate of 6.34 per cent to \$585,000,000 (June, 1892) with a rate of 3.9 per cent, while the annual charge was reduced almost \$130,000,000. From a purely financial viewpoint, as Bastable states, "the Federal government became unimportant except in connection with the management of the Treasury and banking system."

With the augmenting of the silver supply in spite of the steadily declining price of silver and with the depletion of the

government's gold supply, the government in 1894 was forced to issue bonds to replenish its gold supply. Because of the unwillingness of Congress to pass any legislation to provide against the further depletion of the government's gold reserve, President Cleveland was compelled to resort to legislation enacted eighteen years before which gave the Secretary of the Treasury the power, "to purchase gold by the sale of any bonds now authorized by law." This meant any bonds authorized by the Act of 1870. By the end of 1896, which marked the defeat of the silver party, the public debt, through the various issues made as a result of Congress tampering with the money system, was increased to \$250,000,000.¹

The next important Federal loan was the financing of the Spanish-American War. Congress authorized the issue of not more than \$400,000,000 3 per cent ten to twenty year bonds and not more than \$100,000,000 treasury certificates, together with an increase to the existing revenues and taxes which would yield \$100,000,000 per annum. Of this authorization of bonds, \$198,792,660 were issued. The total subscriptions amounted to \$1,400,000,000 or seven times the offering, and they rose to a premium of \$111.50 in May, 1901. This premium quotation, however, was primarily due to the fact that this issue of bonds was made legally acceptable for securing the issuance of national bank notes, thereby making the bonds particularly attractive and profitable for national bank use. This was the last issue of United States bonds which carried the privilege of utilizing the bonds for circulation. Another reason for this favorable subscription was that the bonds were offered at popular subscription with bond denominations as low as \$20, and every bona fide offer under \$500 was accepted. The bonds advanced in a very few days, but they soon passed into the possession of a few large corporations. The government, through the loss of these premiums and the additional costs of flotation, sacrificed more than \$5,000,000 by this popular loan. The Secretary of the Treasury later admitted that the guarantee of a syndicate to take over the issue if popular subscription

¹For a more complete statement of this episode see chap. xix.

failed, was the real force that stimulated popular subscription. As David Kinley points out, a loan floated under this speculative stimulus can hardly be called a popular loan; further, the method of management was expensive as the premium was lost to the government, and this method of placing the loan added to the expense of management.¹

In what was popularly known as the Financial Bill of 1900, provision was made to refund into 2 per cent thirty year bonds, the outstanding four per cents maturing in 1907, the five per cents maturing in 1904, and also permitted the three per cents to be converted at their optional redemption date in 1908. Approximately \$900,000,000 bonds were convertible under this law. The Act states concerning the exchange: "Provided, that such outstanding bonds may be received in exchange at a valuation not greater than their present worth, to yield an income of two and one quarter per centum per annum and in consideration of the reduction of interest affected the Secretary of the Treasury is authorized to pay to the holders of the outstanding bonds surrendered for exchange, out of any money not otherwise appropriated a sum not greater than the difference between their present worth as aforesaid and their par value," etc. The chief advantage was experienced by the banks, whose tax was reduced one-half on their circulation privilege, by the conversion of their short time to long term bonds. This resulted in greater profits being derived from the circulation of bank notes.

The Federal Reserve Act of 1913 authorized the purchase of two per cent bonds securing circulation not to exceed \$25,000,000 par value of bonds per year from national banks by Federal Reserve banks at par, whenever the Federal Reserve Board approves. If the national banks, however, desire to continue the "circulation" privilege, they may do so. If no circulation notes are issued against the bonds purchased from the national banks by the Federal Reserve banks, they may exchange 50 per cent of the amount of these bonds purchased, for

¹David Kinley, National Monetary Commission; *The Independent Treasury of the United States and Its Relation to the Banks of the Country*, 61st Congress, 2 Sess. Sec. Doc. No. 587.

thirty year 3 per cent bonds, and 50 per cent of their amount for one-year 3 per cent gold notes.¹

The Act of June 28, 1902, provided for an issue of bonds not exceeding \$130,000,000 for Panama Canal expenditures, of which \$84,631,990 were issued. They are in denominations of \$20 or some multiple of that sum. They are redeemable in gold coin after ten years from issue, are payable in thirty years, and bear two per cent interest payable quarterly. The prices realized for the issues made under this authorization were: for the first issue, August 1, 1906, 104.036+; for the second issue, November 1, 1907, 102.99; for the third issue, November 1, 1908, 102.436+.

The Act of August 5, 1909, modified this latter Act and provided for an issue of \$290,569,000 bonds at not to exceed 3 per cent. This was further supplemented by the acts of February 2, 1910, and March 2, 1911. The average price yielded by this issue was at the rate of 102.5825. These three per cents, however, cannot be used as security for national bank notes.

The postal savings bonds were authorized by the Act of June 25, 1910. These bonds are redeemable after one year, are payable in twenty years, and bear interest at 2½ per cent per annum, payable semi-annually. They are issued in denominations of \$20, \$100, and \$500 and both principle and interest are payable in gold coin. These bonds may be used by the United States Treasurer: first, to redeem United States bonds; second, to replenish cash in the Treasury; third, to provide long time investments for depositors in the postal savings banks. But they cannot be used as security for national bank notes or Federal Reserve bank notes.

The trustees of the postal savings service are ready to purchase these bonds at any time for the postal savings fund. At this writing, practically two millions have been purchased under this authority. These bonds have consequently been subject to slight fluctuations.

With the issuances of the European War the indebtedness of the United States increased from approximately \$1,000,000,000

¹See Sec. 18 of Act for further qualifications to these purchase privileges.

in 1914 to a gross amount in bonds, treasury notes and war savings stamps of \$26,596,701,648 (August 31, 1919), the maximum amount reached. The bond issues were as follows:

Loans		Issued	Normal Rate
First	Liberty Loans	May 14, 1917	3½s
Second	Liberty Loans	October 1, 1917	4s
Third	Liberty Loans	April 6, 1918	4¼s
Fourth	Liberty Loans	September 28, 1918	4¼s
Victory	Liberty Loans	April 21, 1919	4¾s

The details of these issues have been so completely covered in the chart given in the Appendix that further reference to their characteristics does not seem necessary.¹ Neither would it be possible in the brief space allowed here to give them adequate treatment.

Security of National Bonds.—No class of securities is financially so strong and at the same time legally so weak as national bonds. There are no limitations or restrictions to which the nation is subject except those enacted by its people. And as sovereign powers cannot be sued, no recourse is possible should a national government choose to repudiate its debts. The only security is the promise to pay and this is dependent on the credit and good faith of the sovereign power. An interpretation of this credit and good faith can be determined only by a correct historical interpretation of the nation's record.

A consideration of the theory of national and state indebtedness, however, is not within the province of private finance, but belongs to the study of public finance. Nevertheless, the effect of the causes and results of the indebtedness on national and state credit and the influence in turn on the value of their securities are of paramount importance in any consideration of investment securities.

As already stated, the only security of national or Federal, and state provincial bonds, is "the promise to pay" of the sovereign power supported by the power to tax. The value of that promise cannot be determined by the same intensive method of examination required in determining the value of corporate

¹For details of these loans see Appendix C. In this chart ten separate divisions of these loans are given.

securities, but must be ascertained by factors affecting that promise which are external to the security. And a correct understanding of this latter, to a large measure, is dependent on historical knowledge. One cannot proceed far in determining the investment status of national and state loans before knowledge of the historical facts has been obtained.

With rapidly shifting events the people of a nation are prone to forget the influence of change on national credit and merely assume that the strength or weakness of national or state securities of their decade is indicative of the status of national credit. But it is only necessary to make a very superficial examination of the origin, character and growth of public debts to disprove this belief. Neither would the explanation of the public debt of one nation be applicable in determining the security values of another. As Professor H. C. Adams states: "With some the habit of borrowing money seems to be indigenous, having sprung naturally from the political and social relations of their complex civilization; but with others the growth of public debt is largely the result of imitation or of foreign interference."¹ A historical study, then—a study of their past and present debts—is the first step necessary toward a comprehensive understanding of national and state securities.

Any analysis of the history and present credit of a nation, if it is to give the true credit status and reveal the correct security of a nation's bonds, must enable one to determine: (1) the integrity and good faith of the people; (2) the security and stability of the government; (3) the material resources and the ability of the people to develop these resources; (4) the character of the national revenues and expenditures and the organization of public credit; (5) the amount of the state's obligations; (6) the dependence upon, or independence of, foreign markets for the marketing of its securities as well as the financial habits and investments of the people; and (7) the amount and variety of securities.

The integrity and good faith of a nation's people are directly reflected in its economic and financial records of the past.

¹H. C. Adams, *Public Debt* (1892), pp. 6-7.

A nation which has demonstrated that it can produce and save is usually a nation where citizens are industrially efficient and thrifty. If, coupled with this ability, the people have shown the same attitude in the discharge of national obligations, the strongest test is had of the character and integrity of the population. The reputation which the peoples of the United States, Great Britain and France have possessed in this regard among the nations of the world in the last half century has been an invaluable recommendation for the extension of any credit to these countries.

Where integrity and good faith exist, a strongly organized and responsible government is sure to exist. The stability of the government rests upon the contentment of the people of a nation with their government rather than upon the form of government. "More important, however," states Mr. Kimber, "is a consideration of the character of the government in all its relations, both with its own people and with foreigners, for, as a British authority puts it: If there is no moral conscience or sentiment in the actions of a government in the conduct of its national policy there can be no security anywhere; and as a corollary no confidence can be extended to its instruments of credit."¹ A survey of national indebtedness of the last twenty years and especially the experience of the European War demonstrate more than ever the emphasis that must be placed upon this internal relationship between a government and its people.

Such governments as Russia and Mexico, which—so far as the casual observer could judge from outward appearance—for a long period seemed to possess all of the requirements of stable governments, lacked the most essential fundamentals stipulated above. For a long time a well organized administrative government was considered sufficient security for the extension of credit to nations such as these. The recent War, as well as the experiences with some of the Central American governments have clearly demonstrated that over long periods per-

¹Albert W. Kimber, *Foreign Government Securities* (1919), p. 218 (Quotation from J. Taylor Peddie, *Economic Reconstruction* [1919], p. 37).

manent and stable governments cannot exist, without acting for the best interests of their own people.

Bastable states that: "the financial power of the state rests on the economic development of the people and will be proportional to it."¹ A people might possess a strong government and willingness to pay their obligations, but if they possessed no resources to develop or means to produce, the former characteristics obviously would be of little avail. A country need not possess all the raw materials for production, but it must have some of the basic materials essential to production. England, which has had large supplies of coal and iron, has been able to secure the other essential products abroad for the development of its great textile industries. But even should England's home supply of coal and iron become exhausted, it has, out of its savings, acquired the good will and control of raw product markets through financing the industries of other countries. Japan, which lacks some of the more fundamental raw materials in its own islands, has assumed an aggressive policy in acquiring territory possessing these materials on the adjoining mainland of Asia.

In the last analysis a nation must possess not only the resources but the ability to develop them. But even great resources cannot be considered apart from a people. It has long been known that China possessed wonderful natural resources, but it is due to foreign capital and initiative that it is now developing them.

Modern authority has generally conceded that the revenues of a government should be sufficient to pay all expenditures excepting in extraordinary emergencies or expenditures for enterprises which have a productive income. Illustrations of the latter are the railways of Germany and the salt monopolies of Peru. Where the income from a productive industry is sufficient to support the industry the same policies used in the control of private enterprises can be followed. Extraordinary expenditures, such as those for war, national calamities, or large permanent improvements, must usually be met by loans instead

¹C. F. Bastable, *Public Finance* (1892), p. 542.

of by taxation. The majority of these national loans have been created for carrying on war or for war indemnities. The loans for these extraordinary outlays are justified on the basis that the benefits will accrue to the future as well as the present, and that therefore these charges should be distributed.

Granting the latter, the strength of the national credit still rests on the nation's ability to tax. As Henry C. Adams again states: "If new taxes cannot be used as the basis of war financing to the exclusion of credit it is equally true that credit cannot be so used to the exclusion of new taxes. Both reason and experience may be brought to the support of this assertion. Credit cannot sustain itself. It must be based on revenue, and as the ordinary expenditures of the nation are not materially decreased on account of war, the income from taxes must at least be increased to cover the interest which accrues on the loans contracted. To do less than this would be to base credit on credit, a procedure which would inevitably lead to financial disaster."¹

Another test of the credit of a large civilized country like the United States is its ability to readjust its revenues and expenditures and float bonds in its own market for the financing of a war or exigency. M. Neymarek stated a few years ago that the strength of the French rentes rested on the fact that all French loans could be floated in the home market. It is true that a nation may effectively increase its borrowing power by an expansion of loans in the foreign market, but without a large home market the cost of the loan must be correspondingly increased. It is not essential to go beyond the history of the national loans of the last War to secure ample verification for M. Neymarek's contention. England, financially the strongest of the European powers, for the first time entered a foreign market to place a loan in the recent War. Even France, with its large per capita indebtedness at the beginning of the War, floated the greater part of its obligations within its own borders.

While both the rapidity and the large amount in which these

¹Henry C. Adams, *Public Finance* (1906), p. 535.

loans had to be issued would have caused undue pressure, the stronger nations could have floated all of their loans internally. The real reason for the floating of these particular loans abroad was to check the flow of gold and create an offsetting balance in trade, thus securing the needed goods without which they could not have succeeded. A relatively small amount of commodities, it will be remembered, was imported into the United States during the war period from the belligerent nations. The loans were consequently an advantage to both the United States and the European countries securing these loans. The forced necessity for these countries to seek loans in foreign markets during this period, consequently, must not be looked upon in the same light as the necessity for a country to seek loans elsewhere because of its inability to finance them. Some of the earlier loans of Russia and Turkey are good examples of the latter class.

In the extension of credit in normal times for commercial purposes, the advance of the loan is always made by the nation which is able to finance its own needs. The ability of a people to save enough above its own requirements to make loans to other nations demonstrates more than anything else the story of a nation's financial habits.

A large public debt is not necessarily objectionable, neither need it be a sign of weakness. If a large debt has been created for productive purposes, and is self-sustaining, it must be viewed in the same light as the indebtedness of any commercial enterprise. The amount of debt issued for all other purposes must be measured by the ability of the people to pay. The increased funded debt in each succeeding war, since 1800, has been looked upon as the ultimate limit to which the particular nation or nations involved could go, but each war has revealed an increased wealth and income, with the corresponding power to carry a larger debt.

The duration of the last European War in 1914 was thought of in terms of the ability of nations to finance previous wars. The prognosticators, as in other wars, failed to reckon fully with the growth of national wealth and income. While a single one of the Liberty Loans was larger than the total war debt of

the Civil War in the United States, they were all absorbed more easily than were any of the Civil War Loans. "The combined direct cost of the wars in the 125 years preceding this war was \$21,000,000,000. One of these raged through a period of twenty-one years. Another lasted four years."¹ When we view these loans in more distant perspective, we will fully appreciate that the financial disturbances caused by the flotation of the huge loans by the more important countries were far less than that following any of the wars in the previous century. The continued strength of the banks is a testimony of the increased ability of the countries to meet these obligations. The debt of every period must then be measured in terms of the ability to pay. Measured in these terms the obligations of our own country are not so enormous.

Many have assumed, because of the increased taxes upon capital holdings, both direct and indirect, that the burden of indebtedness has materially increased. This is merely a shifting of the burden and must not be confused with the ability to pay. It is true that taxes have increased, but so have the services which the state renders. But as long as the ability of a nation to pay its obligations has increased, the security of its obligations has been enhanced.

Wealth and Income of the United States.—The wealth of the United States has been variously estimated from \$250,000,000,000 to \$300,000,000,000 and its income from \$40,000,000,000 to \$50,000,000,000 (1918). With the gross indebtedness now reduced to less than \$25,000,000,000 (November 1, 1920), the

¹The Mechanics & Metal National Bank, *The Cost of the War* (1917), p. 15. The following table from the same pamphlet gives the cost of the world's most notable struggles (p. 15) :

Napoleonic Wars, 1793-1815	\$8,250,000,000
Crimean War, 1853-1856	1,700,000,000
American Civil War, 1861-1865	8,000,000,000
Franco-Prussian, 1870-1871	3,500,000,000
South African War, 1900-1902	1,250,000,000
Russo-Japanese War, 1904-1905	2,500,000,000

Estimate of Cost of Great War by Carl C. Plehn (Introduction to Public Finance, 1920, p. 408), "The estimated cost to date, not including pensions and similar unsettled items, is placed at \$200,000,000,000, taking the inflated and discounted currencies at the old parity with dollars. It has left the belligerents with nominal debts amounting to \$240,000,000,000 as against pre-war debts of \$29,000,000,000."

annual income is approximately twice the total funded debt. A comparison of the funded debt to the income and wealth of the nation with that of European countries indicates the relative financial strength of the United States.

WEALTH INCOME AND DEBTS OF IMPORTANT NATIONS

Country ¹	Pop- ulation in Million	Esti- Estimated		Per Capita Debt 1914	Per Capita Debt 1920
		mated Wealth per Capita	National Income per Capita		
United States	104	\$2,404	\$385	\$9.70	\$249.38
Great Britain and Ireland.	47	1,915	255	74.50	817.04
Germany	68	1,215	162	76.45	589.97
France	40	1,625	187	162.50	768.11
Russia	175	343	40	26.25	298.61
Austria-Hungary	50	756	113	70.25	976.53
Italy	36	833	118	77.75	408.78
Belgium	7.5	1,200			246.67
Portugal	6.2	560			
Bulgaria ²	5.5			30.99	209.86
Japan	72	186		23.92	22.14
Turkey ²	21.2			31.55	94.11

As already intimated, the United States has always followed the unusual policy among the nations of seriously attempting to pay off its funded debt. In comparison with the funded debt of the countries in Western Europe in 1914, the debt of the United States seemed exceedingly small. The per capita debt at this time was more than eight times as great in England, Italy and Germany and more than sixteen times as great in France. Even with the larger debt which the United States has assumed as a result of the war-financing, the burden is no larger than the debt following the Civil War. The per capita debt at the end of 1865 was approximately \$80 per capita or 10½ per cent of the wealth per capita. The indebtedness at the beginning of 1920 was approximately \$275 per capita or about 10 per cent of the wealth per capita. Compared with our

¹The Data in this table are compiled from the tables taken from the pamphlet on *"The Cost of the War"* prepared and issued by the Mechanics and Metals National Bank, New York City. The figures for 1920 are taken from Carl C. Plehn.

²Carl C. Plehn, *Introduction to Public Finance* (1920), p. 352.

facilities, and our ability to produce, the burden is much less than in the Civil War period. The great geographical extent of the country, linked with the great diversity of raw materials and climatic conditions, give added weight to this argument.

The Circulation Privilege.—National banks may, as previously stated, exercise the privilege of issuing national bank notes to the amount of their respective paid-in-capital. The twelve Federal Reserve Banks, when they purchase any of the bonds held by national banks, are accorded the same privilege of issuing notes secured to the amount of the bonds purchased. No national bank, however, is required to give up its circulation privileges and with some of the amendments added under the national banking law the retention of this circulation is even more desirable. And as new bonds will probably not be issued with circulation privileges, the market demand for these bonds will be supported by the national banks until maturity. As long as a national bank makes provisions in the calculation of its profits for the amortization of premium on the bonds purchased there is the advantage of a profit to a national bank in exercising the rights of this circulation privilege, at the present price of the bonds possessing circulation privileges. This, of course, adds to the strength of this artificial market for bonds with circulation privileges.

The bonds which have the circulation privilege are the Consol 2's, Panama 2's, and Old 4's. The difference to the banks in the use of these respective bonds is in the tax rate on circulation. If the national bank notes are secured by 2's they are subject to a tax of $\frac{1}{2}$ of 1 per cent and when secured by 4's to a 1 per cent tax. The maturity dates of these bonds, however, are becoming an even more important factor than the tax. The Panama 2's are the only bonds due at definite dates, which are 1936 and 1938 respectively. The optional dates of 1906 and 1918, since which time the government has had the privilege of reducing the bonds, has not been exercised. The Consol 2's are due on or after April 1, 1930, at the option of the government; the old 4's after February 1, 1924. Should the government exercise its privilege of the redemption of these bonds at their respective option dates, all other outstanding

bonds which retain the circulation privileges would receive an additional market stimulus.¹

Rate, Amount, Denomination, and Taxation.—While the net return on government bonds fluctuated more or less, the nominal rate on bonds after the Civil War continued steadily downward to 1891 when the first 2 per cents were issued. It was, however, self-evident after 1900 that bonds could not have been maintained at that low rate except for the existence of an artificial market which the circulation privilege created. With the entrance of the United States into the European War the first issue was made at $3\frac{1}{2}$ per cent, with full tax-exempt privileges. The rate reached its highest mark in the Fifth Loan at $4\frac{3}{4}$ per cent. Some of the differences in these rates can be

¹Illustration of Profit:

Value of Circulation Secured by \$100,000 U. S. Consol 2's, at 102 (Money at 6%)			
\$100,000.	2% Bonds deposited in Washington would yield	\$2,000	per annum
100,000.	Circulation, immediately returned to the bank and loaned at 6% would yield.....	6,000	“ “
TOTAL GROSS RETURN FROM CIRCULATION...		\$8,000	“ “
From Which Deduct:			
Tax on Circulation ($\frac{1}{2}\%$)		\$500	
Expenses (covering shipments of renewed currency from Washington) about*		65	
Loss of 6% interest on \$5,000, redemption fund to be lodged in Washington against outstanding circulation		300	865 “ “
NET INCOME TO BE DERIVED FROM CIRCULATION		\$7,135	“ “
Net income without circulation, obtained by loaning at 6% the net cost of 102 for bonds		6,120	“ “
INCREASED INCOME OR PROFIT DERIVED BY OBTAINING AND LOANING CIRCULATION INSTEAD OF LOANING AMOUNT WHICH BONDS WOULD COST		\$1,015	“ “

The above calculations are based upon \$100,000 circulation. The profit on greater or lesser amounts will be proportionate. Assuming a maturity of 100 years, a sinking fund sufficient to extinguish the premium price paid for the bonds would amount to only a few cents per annum.

*Average expense which is more than the estimate made recently by the Comptroller of Currency.

C. F. Childs and Company. Pamphlet, Concerning *Bank Note Circulation Accounts and the Profit of National Banks*.

explained in the exemption privileges allowed in the different loans. Unless new bond issues are made bearing the circulation privilege, there is little probability that any more 2 per cent United States bonds can be issued in the near future, if ever. Prior to the European War issues, all the United States bonds were exempt from all taxes. This was also true of the $3\frac{1}{2}$ per cent and $3\frac{3}{4}$ per cent loans of the Liberty Loan issues. The 4, $4\frac{1}{4}$ and $4\frac{3}{4}$ per cents were accorded certain exemption privileges, all of which are stated in Appendix "C." The differences between the 4 per cents convertible into the $4\frac{1}{4}$ and all of the $4\frac{1}{4}$'s are not important enough to have any appreciable influence on the market price of the different issues at this rate. The difference in price, then, primarily depends upon the different maturity dates together with the difference in the amount of the various issues outstanding. This difference in prices must ultimately take place though the public generally is not cognizant of this difference.¹

The total funded debt of the United States in 1912 approximated \$1,000,000,000. On June 30, 1919, the funded debt as a result of the European War financing approximated \$25,000,000,000. This meant an increase from almost \$10 per capita to approximately \$275 per capita. Though this increase in absolute amount is twenty times greater, it is not, as already stated any greater in ratio to the income of the country than the debt following the Civil War was to the income of that period. As a consequence, the payment of this debt should impose no greater hardship than was experienced after the Civil War. As the United States unquestionably will continue its policy following other wars of rapidly reducing its debt, the effect will be of importance upon both its credit and the prices of its securities.

The past policies of rigidly limiting the increase of funded debt and the payment of funded debt have been seriously questioned. The United States for a long time stood quite alone among national governments as a debt-paying nation. It was seriously questioned whether the payment of public debts was not a doubtful procedure. Certain European statemen for a

¹C. F. Childs, *United States Bonds, Annals of the American Academy of Political and Social Science*, vol. lxxxviii (March, 1920), p. 47.

long time advocated that national obligations should all be made long-time loans and renewed from time to time, or made perpetual obligations. This attitude, however, has changed. The United States as a young nation could not have done any one thing that would have enhanced its credit as much of the payment of its debt after the War of 1812, the Mexican War of 1848 and especially after the Civil War.

The denominations of United States bonds have a very wide variation. They are in \$20, \$50, \$100, \$500, \$1,000, \$5,000, \$10,000, \$50,000 denominations, and can be issued in higher denominations under special authority from the Secretary of the Treasury. Coupon and registered bonds are issued in the lower denominations, though coupon bonds are not usually issued for more than \$1,000. Because of the inactivity in bonds of large amounts and the necessity of safeguarding against the loss of the instruments, the larger denominations are always in registered form. The generally accepted standard has been the \$1,000 bonds, but with the growing demand for government securities it is not impossible that smaller issues will become the popular denomination. The low minimum rate of the French rentes can never be considered a possibility in the United States because of the higher wage of the lower class of wage earners in the United States and the consequent higher standards. Though expediency or popular demand may necessitate lower denominations, the greater cost of small denominations will always be an argument against their issue. The success of the Postal Savings issues in bringing out hidden cash, and a few of the well directed sales of municipal issues in small denominations, indicate, at least, a possible development.

There is no standard form of maturity in Federal bond issues. They vary from the emergency notes of one year, that may be issued by the Secretary of the Treasury to the Panama 3's of 1861 with a life of fifty years. The 4's of 1925 were also authorized as fifty year bonds. The lengths of other maturities, including the war issues now outstanding, from the date of issuance are ten, fifteen, twenty, thirty, and thirty-five years.

Registered bonds have a decided advantage in case of loss, as the payment of the principal and interest can be stopped. The only redress for recovery of coupon bonds is by a special act of Congress. Registered bonds, on the other hand, are at a disadvantage because of the expense and the trouble of transfer. With respect to bonds issued prior to 1917, coupon bonds can be converted into registered bonds of the same obligation, but "the law does not authorize the conversion of registered bonds into coupon bonds." Consequently, if the owner desires to hypothecate government securities, coupon bonds are the more desirable. This advantage possessed by coupon bonds usually causes them to be sold at a slightly higher price in the market than registered bonds.

The Markets, Prices and Net Yield.—The ability to dispose of bond issues, even of the minor civil divisions, gives a direct evidence of the material wealth and prosperity of the issuing civil unit, and gives one a clue to the security of the issue. With minor civil divisions, the issue may be too large for the absorption necessary for a successful bond sale, a condition which must be taken into consideration. The same may be true of state loans, but not of national loans except during the periods of extreme emergency such as the recent War.

Prior to the World War, the investing public of the United States was able to absorb any peace loan issued, but this ability was more especially demonstrated in the war issues. These issues were not floated without effort, but their absorption showed the latent resources in wealth. The large turnover of small holdings in the several months following is not an indication of a glutted market, but rather of the spendthrift propensities of the nation of which there has been and still is an abundant testimony on every hand.

The contrast between the ability of the United States to furnish its own markets, and the continual necessity for Russia and Turkey to seek other markets, is a good illustration of the value of the home market, as an evidence of the security back of national bonds. Not only have these two latter countries been compelled to find a market for their national loans, but

industrial developments have largely been dependent upon foreign capital, though Russia especially has sufficient resources to make it the dominant empire of the Old World. As stated in the beginning, this contrast in markets is an evidence of the available income of the community which also means a security of income-producing wealth.

The market for United States bonds from the Civil War to 1917 was largely an artificial one. The Federal banking law, as previously stated, requires every national bank with a capital in excess of \$150,000 to purchase a minimum of \$50,000 in bonds; if the capital is \$150,000 or less, to purchase one-fourth of its capital in government bonds. The market value of these bonds has been especially stimulated by national banks' purchases for the purpose of issuing their own bank notes against these bonds. If a bank desires to issue national bank notes in addition to this amount, it can do so by purchasing additional bonds to the amount of the desired increase in circulation wanted, but limited to the amount of its paid-in-capital.

With the revision of the national banking law in December, 1913, this market for United States bonds will continue, as the banks are not required to give up this privilege, though it may be transferred to the Federal Reserve banks, if they purchase these same bonds from the national banks having the circulation privilege. Still another factor which has stimulated this artificial market has been the requirement to furnish bond security for national banks that were made depositories for government funds. That is, for every dollar deposited by the United States government in these banks, one dollar in United States bonds or other bonds designated by the United States Treasurer must be deposited with the United States Treasurer. On the average, about 60 per cent of these bonds accepted against deposits have been United States bonds. It is generally agreed now, that the disbursements of the United States funds among depository banks at the time of the sale of Panama 3's at a premium, made their sale possible.

Bonds that are devoid of technical support such as security of circulation or deposits as described above are subject

to general competitive influences. The transition of this readjustment, however, may continue for a period of years. The length of the period will depend upon the action of the government which is still doubtful, and upon the competitive demand. As the banks do not have to sell the bonds below par and there is no provision for new issues, the amount of these bonds will decrease in the face of a continued and probably increasing demand on the part of national banks. This would seem to make it doubly certain that no more 2 per cent bonds can be issued for a good many years.

The market experience of the United States pre-war bonds through the early months of the European War appears on the surface to have been rather remarkable. From the declaration of the war on July 28, 1914, to January 1, 1915, government 2's fluctuated within a range of only three points. It was claimed by those not familiar with the market of Federal bonds that these securities, like all securities, should have been seriously affected by the closing of the stock exchange. To the observant this narrow fluctuation of government securities prices was not difficult to understand. The artificial market for bonds still existed. The depressed demand growing out of the impression among many bankers, a few weeks earlier, that the establishment of the Federal Reserve banks would bring about some unknown result was found to be a misapprehension. The market had quickly reacted from this influence, when it fully realized that the banks did not have to dispose of bonds with circulation privileges, and if the banks did sell them, they would only be transferred from one institution to another. The closing of the exchange could have no perceptible effect on the prices of government bonds, as less than one per cent of the transactions in these securities were made at this time on the floor of the exchange. The purchases of the Federal Reserve banks, which were probably the strongest single factor in supporting the market, were during this period large enough to take up the floating supply.

With an increase of an indebtedness from approximately \$1,000,000,000 to a gross indebtedness at its highest point of

\$26,596,701,648 on August 31, 1918, and with approximately eighteen million holders of Liberty bonds, a market reaction was inevitable. On the one hand, increasing price levels, rising interest rates, and the lack of the artificial market possessed by the 2's, and on the other hand the large amount of loans carried by banks for depositors who had not paid for their bonds even by the mid-summer of 1920, made a fall of prices a certainty. Banks consequently were over-loaned in the advancement of credit on these bonds not paid for, and with the bonds which they themselves held. Corporations which normally depended on bank credit for a considerable proportion of their current needs, found their credit limited or the interest rates too high after the Federal Board raised its rates early in 1920. To borrow on the Liberty bonds meant a heavy loss—the other recourse was to sell in order to secure the necessary funds. Also Europe, which has always furnished some outlet, was more than incumbered with its own indebtedness and sought relief itself in the United States' markets.

Purchasers who continued to carry their holdings on loans with the banks were also forced to renew their loans at higher interest rates. Other private investors who had not paid for their bonds threw them on the market rather than pay a higher rate than they received. The supply temporarily became greater than the demand, as those who would have taken full advantage of this opportunity were limited by the cash funds which they could command. The amount of this turnover is reflected in the number of the present holders of these issues as compared with the number on May 1, 1919. Of the original eighteen million Liberty bond holders less than 25 per cent now hold their bonds. As long as commercial banks must continue to carry these bonds in large quantities and until they are absorbed, paid for and placed in strong boxes, inflation must persist to a more or less degree and the market price be depressed.

But the more permanent influence of changing interest rates and prices upon national bonds must not be overlooked. The Liberty loans must rest on their own competitive investment base. The experience of the English consols in their

steady decline prior to 1914 under the pressure of a rising price level, is a case in point. With increasing price levels comes the demand for higher yields, and competition with other securities becomes a pertinent consideration. Foreign and civil loans and seasoned corporation securities which have survived three panics must now be reckoned with, despite the fact that no other security holds the enviable position of the United States bonds.

The policy which the Treasury Department may follow in its handling of the sinking fund, especially until the complete adjustment to normal conditions, will influence the market. If, instead of using up the fund from month to month as it accrues, it be held in reserve until needed in a particularly depressed period, it might have some effective influence. There seems scarcely any need of dissipating this fund when the amounts are so small that they will have no influence on the market. Even if they are allowed to accumulate, their amount will be hardly sufficient to support the market, if call must be made upon them at frequent intervals. If public buying adequately gives this support there is no need of an artificially maintained market. With very heavy liquidation of Liberty bonds in the market, the support which the funds from the two and more per cent sinking fund can give, of course, will be decidedly limited. The success of some of the European governments in calling the bonds by lot at par instead of buying them in the open market for the sinking fund has been suggested by one prominent authority on government bonds, as a policy to be followed by the Treasury Department.¹ There is no question as to the soundness of this argument. Although it would not force these bonds to par at this time, it would enhance their price, as the chance of "one in eighty" of being called, will cause greater hesitation in selling the bonds.

Of the ten distinct Liberty bond issues outstanding, the two tax-exempt issues, the 3½s and the 3¾s (except for state and

¹C. F. Childs and Company (Chicago and New York) *Market Letter on Government Bonds* for May, 1920.

The War Finance Corporation no doubt did assist in a measure in checking the downward trend of prices early in 1920 by its purchases in the open market.

inheritance taxes), have depreciated the least in price.¹ These two issues, consequently, have been purchased by large investors, insurance companies, trustees, etc., having large incomes, and cannot be compared with the other war issues. When purchased by the investors referred to, they are put away in strong boxes.

The difference in the price between the various $4\frac{1}{4}$ issues should be determined by the difference in their maturities, but the varying quantities offered or sold have largely offset this normal corrective. When the market has once been readjusted, maturity dates will control the difference in prices.² Mr. Childs in commenting on these price differences, states: "As a general rule, the most inexperienced investors select by preference short, rather than long-time maturities. The two different issues of First $4\frac{1}{4}$ s afford another conspicuous example of a notable price difference. Both of these bonds exist as the result of converting $3\frac{1}{2}$ per cent bonds into those with a $4\frac{1}{4}$ per cent rate under two different Acts of Congress. In the case of the First Liberty Loan Converted $4\frac{1}{4}$ s, issue of May 9, there are nearly \$380,000,000 bonds outstanding, whereas in the case of the issue of October 24, there are outstanding less than \$3,500,000.

¹Lowest and Highest Recorded Price Levels of All Outstanding U. S. and Territorial Bonds Since Their Issuance to Date (August 1, 1921).

	Lowest Price	Date	Highest Price	Date
Consol 2s	94	1913	109½	1907
Panama 2s	94¼	1913	105½	1906
Panama 3s	75	1920	104	1916
Conversion 3s	75	1920	103	1916
Old 4s	104	1919	139½	1902
Hawaiian: Porto Rican:				
Philippine 4s	78	1920	109	1913
D. C. 3.65s	94	1920	107	1913
Liberty $3\frac{1}{2}$ s	86.00	May, 1920	102.50	Aug., 1918
Liberty First 4s	83.00	May, 1920	98.40	Jan., 1918
Liberty Second 4s	81.40	May, 1920	100.02	Oct., 1917
Liberty First $4\frac{1}{4}$ s	84.00	May, 1920	99.00	Oct., 1918
Liberty First-Second $4\frac{1}{4}$ s....	86.00	May, 1920	102.00	Oct., 1919
Liberty Second $4\frac{1}{4}$ s	81.00	May, 1920	98.14	Nov., 1918
Liberty Third $4\frac{1}{4}$ s	85.80	May, 1920	99.10	May, 1918
Liberty Fourth $4\frac{1}{4}$ s	82.00	May, 1920	98.10	Nov., 1918
Victory $3\frac{3}{4}$ s	94.60	May, 1920	100.48	June, 1919
Victory $4\frac{3}{4}$ s	94.70	May, 1920	100.04	June, 1919

²C. F. Childs, United States Bonds, *The Annals of the American Academy of Political and Social Science* (March, 1920), vol. lxxxviii, p. 46.

Bonds of the former loan are available in sufficient amounts to meet the demand and still be quoted at a substantial discount, but bonds of the latter loan on the other hand are scarce and virtually unobtainable in the open market, which fact causes them to be quoted at a premium when an occasional block of bonds becomes obtainable.”¹

¹Ibid (see the appendix also for a chart compiled by this same authority).

CHAPTER XXXVIII

FOREIGN GOVERNMENT SECURITIES¹

Prior to the European War, foreign government securities were unknown to the average American security holder. Corporations in the United States, on the other hand, secured large loans abroad to help develop their enterprises in this country. Consequently the international problem as related to securities was the finding of a market for United States stocks and bonds and not the finding of a market for foreign securities in this country. The War, however, has reduced the former holdings of the United States securities in Europe. Large holdings of American securities have been re-purchased and huge credits extended to Europe. At this writing, the after-war readjustment in financial affairs has not proceeded far enough to determine whether this advantage will be retained by the United States. The present opportunity for the United States to establish itself, as a world power, is one which has never before come to any nation.

Among the European nations Great Britain has stood out pre-eminently as the great lending nation, though France, The Netherlands, Belgium and Switzerland have also occupied an important place. It was England's large ownership of foreign securities, both government and private corporation securities, which gave it a dominant position and enabled it to assist the Allies in their war financing. Mr. C. K. Hobson states concerning the British, prior to this period: "This 'pioneer' character of British foreign investment is mainly attributable to the willingness of many British investors to assume risk, to the extensive trade relations of Great Britain."² In 1914, the

¹Much of the discussion in the previous chapter on the general principles is applicable to foreign government bonds and consequently has not been duplicated in this chapter.

²C. K. Hobson, *Export of Capital* (1914), p. 122.

total holdings of England were estimated to be between three and one-half and four billions. The French have not made as wide a diversification of their holdings, confining the larger part of their advances to adjoining countries, and their North African colonies. French investments have been especially heavy in Russian and Turkish government issues. By 1914, the foreign listings in France reached nearly six hundred million. Prior to the War, French holdings in the United States were given at about one billion. Germany was the last of the European countries to become a large holder of foreign securities. In 1914 the total German security holdings in the United States aggregated about one billion and a quarter.

The United States prior to the War occupied only a minor role as a lender of credit to foreign governments. The most important loans extended by the United States before 1914 were to Mexico in 1899, 1904, and 1913; to Cuba in 1904, 1909, and 1914, and to Japan and San Domingo in 1908 and 1913. The war conditions changed this situation. It was estimated that about \$235,000,000 were held in national bonds of foreign countries by private holders and corporations on September 1, 1914. It probably would be safe to estimate that \$1,500,000,000 of foreign government bonds were held on January 1, 1920, by investors in the United States in addition to the approximate \$10,000,000,000 advanced by the United States government to Europe. But to maintain this position greater co-operation and larger and more effective organizations are needed. Bankers are quite aware of this necessity as well as of the need of the government's co-operation and goodwill.

United States investors have never had the support or co-operation that has been given the European foreign investors by their governments. If we include the international trade relationships and the finances which grow out of them, this has been especially true. The larger and more important factor, however, has been the lack of capital within the United States for its own needs and the necessity to go abroad for large amounts of capital. While these statements are not all specifically applicable to all government bonds, they do throw light upon the financial policies of a nation.

What Determines the Flow of Investment Between Countries.—All the conditions and requirements which make a sound investment, described in the previous pages of this book, are equally applicable to foreign government and foreign corporate securities. And though the discussion here is primarily concerned with government securities, the movement of funds resulting in the buying and selling of securities between two different nations also includes corporation securities. What then does give rise to the purchase of the securities of one country by another?

When new countries are to be developed, capital must be secured from other countries—this is furnished in the form of finished goods and all forms of equipment. It is not the money in itself which is wanted, but the instruments which can be utilized in the actual development of the country's resources. The immediate result then is that the new country has an excess of imports of those goods and equipment over the products which it may immediately render in payment, either directly to the country furnishing these goods or to other countries. And the principle would be the same if it shipped products to another country and exchanged this credit to pay its own balance.

It is not likely, however, that the country will be able to produce a sufficiently large amount with which to pay for all the imports. To pay this balance, credit must be secured from the country selling the goods. Where this balance may continue for a considerable period this advance of credit is usually made in the form of a permanent loan.

Exactly the same relationship would exist between two countries where one of them becomes involved in war and is forced to turn its productive capacity to producing war material, and its man-power to carrying forward military activities. To secure the means to pay for food and war supplies, credit must be advanced, for no country ever carries a sufficient surplus of funds to meet such extraordinary expenditures, and the burden is usually too great to be met by taxation. The only other recourse is to secure large loans; and where the war activities, even of the oldest countries, become too large, credit must be

secured from abroad. This credit will usually be secured from the country furnishing the supplies. The United States occupied this position during the European War in its extension of credit to Europe. Not only did the United States buy back a considerable volume of private corporation securities, but it also advanced approximately ten billions in the form of credit to the national allied governments.

The sending of goods is the simplest of the forms of settlement, but balances may be adjusted by other means than loans or goods. For illustration, travelers in a foreign country may spend large sums which they have taken from their home country. The United States travelers prior to the War probably never spent less than \$100,000,000 annually in Europe. Immigrants in America send millions every year to their kinsfolks in Europe, again creating a debit item in the national balance sheet. Prior to the War, less than 10 per cent of the ocean freight of the United States was hauled in its own bottoms; the charges on the other more than 90 per cent were paid to European countries, thus creating another debit balance. The payments of such items are called invisible balances in trade, between two countries as distinguished from the balances created by the export and import of goods, yet they are just as effective in settlements of differences. Payment for any form of services would likewise be placed under the same caption.

Even where gold is mined to the extent that a surplus is created and exported from a country, the export of gold enters into an adjustment of trade balances the same as the export of any other commodity. "A country which produces specie, and especially in modern times one which produces gold, is in a peculiar situation. If this be the only item (or the dominant item) over and above ordinary merchandise transactions, the country will regularly have an excess of merchandise imports, just as it would have if travelers' expenses or freight charges had to be remitted. But it will also have a regular outflow of specie; and therefore foreign exchange will be regularly at a premium. The specie is in this case an ordinary article of export, like wheat or cotton or any other commodity. But it

goes out only when the state of foreign exchange is such as to warrant its shipments."¹

The Character of the Money System and Its Effect on the National Debt.—When differences exist in the monetary standards of two countries and the debt is payable in the standard of value of the country issuing the bonds, there is an immediate influence upon the value of the bonds. Where a country has a paper money or partial paper money standard, the effect upon bond values is even greater than in a country having a silver standard and making its bond issues payable in its own standard.

As all students of money systems have shown, local prices usually respond rather slowly to the changes in foreign exchange rates. If the shift in foreign exchange rates from the normal rates between two countries is only temporary, reflection of this change is not likely in the local markets. Consequently, if the bonds issued in a foreign country are payable in the local currency the holder is subject to the risk of the fluctuation in the exchange rates. If the bond, however, is payable in the standard money of the foreign country in which the bonds are sold the losses of these risks must be borne by the countries issuing the bonds. On the other hand, the holder in a gold standard country of corporation stock of a silver or paper money standard country, would always be compelled to assume the risk of any changes in the values of the two money systems. If, for example, the value of the paper money should depreciate, a loss would be suffered and vice versa. Fortunately most government bonds sold in a foreign country are now payable in the money (or the equivalent) of the country in which they are sold.

Professor John Williams gives us a good example of the effect of a paper money standard in his first hand study of the international finances in Argentina.² When mortgage bonds were originally issued in Europe, they were quickly bought up by British investors on the strength of the government's

¹F. W. Taussig, *Principles of Economics* (1915), vol. i, pp. 473-474.

²John Henry Williams, *Argentine International Trade Under Inconvertible Paper Money* (1920), 1800-1900, chap. vi.

guarantee. The investors, however, had overlooked the very important fact that the interest on these bonds was payable in the paper currency of Argentina. Consequently, when Argentina faced its financial difficulties, these bonds were greatly depreciated. Activity in sales back and forth between Europe and Argentina depended quite directly upon the fluctuation in the exchange rate.

An interesting episode in the history of the United States illustrates, how, even in a well-established country, a threat to seriously tamper with the money standard may affect bond values. The political compact of 1890, here referred to, was probably one of the most interesting failures of an attempt to defy the principles of public finance and monetary science. It will be remembered that no provision was made for the coinage of the silver dollar in 1873, and after 1875 the price of silver in gold fell rapidly. As a result of this situation, the Bland-Allison Act was passed in 1878 as a compromise to the Remonetization party, and this act continued in force till 1890. It will also be remembered that the national debt was payable in "coin" and there was a strong minority in Congress, from the West and South, who, because of the large debtor class in these sections, opposed the payment of this debt in coin.

In the meantime the silver constituency in Congress had been increased by the addition of new Western states, and this increased the power of the silver advocates, especially in the Senate. Three things were necessary to satisfy all elements in the party: namely, the passage of a high protective tariff, a compromise to the Silver Republicans, and a reduction of the surplus in the Treasury. As the Western Silverites of the Republican party opposed the High Protectionists of the East, and vice versa, a compromise measure was necessary. To satisfy the East, very high duties were placed on certain manufactured articles, so high, indeed, in some instances that the revenue was entirely checked. To reduce the surplus, the tariff on sugar was taken off, thus dispensing with an income of \$50,000,000, while an increased outlay was made by offering a bounty to home-grown sugar. To appease the Silverites, the Bland-Allison Act was repealed and the Sherman Act, which remained in

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force three years, was passed, providing for the purchase of \$4,500,000 of silver bullion, and Treasury notes that were made legal tender were issued in payment.

This legislation, aggravated by subsequent conditions, resulted in such a heavy drain of the gold supply that the national credit was greatly impaired. There was now added every year to the existing supply of paper money of \$345,000,000 in United States notes, \$50,000,000 Treasury notes which were also legal tender and had no limitation or reserve for their protection. At the same time that this expansion of paper was making a new demand on the gold of the Treasury, the tariff was lowered, which made an immediate cut into the revenues of the government. With this sudden reduction of the revenue and regular increase of legal tender notes, gold was steadily drained from the Treasury. For as soon as gold was obtained, either for export or for the payment of imports, the notes would be reissued and again returned by the bankers for more gold. Thus the legal tender notes created a vicious circle. Before 1890 not more than \$1,000,000 notes a year were presented for redemption while \$102,000,000 were presented in 1893. Further, this strain on the country's finances was increased by the demand that all national debts be paid in silver as well as gold.

This caused a great deal of consternation among holders of Federal bonds, especially among European bond holders, for if the demands of the Silverites had succeeded, the value of their holdings would have dropped one-half on the basis of the price of silver at the time. And it would have affected not only national securities but corporate securities as well. As a consequence, the New York market was soon overstocked with securities for sale, and both prices and credit rapidly fell. This in turn caused an unfavorable balance of trade and a consequent export of gold. Encroachments, even beyond the point of safety, were made on the gold reserve to meet current expenses. The banks, realizing the serious effect that this continuous drain had on other securities, supplied the United States Treasury with \$31,000,000 in the first quarter of 1894, but it was not sufficient to check the demand on the Treasury.

There was only one expedient left to conserve the gold reserve and prevent the suspension of specie payments, and that was to borrow gold by the sale of bonds. Congress, which was now dominated by the silver argument and political conspiracies against the administration, refused to give the Treasurer the authority to issue long term bonds. The administration then turned to the old Resumption Act of 1875, under which Act the Treasurer issued bonds without special authority. This Act provided for bonds maturing in two years at 5 per cent; fifteen years at $4\frac{1}{4}$ per cent and thirty years at 4 per cent; but the Act as originally passed was only intended to apply to the bond issues of 1870. Regardless of the fact that the Act of 1870 was only meant to meet the immediate necessity for the purchase of gold to provide for specie payments, it prevented the suspension of specie payments at this time.

In January, 1894, \$50,000,000 of 5 per cent two-year bonds were sold, which yielded the government \$58,660,917; and a second series in November of the same year that yielded \$58,380,500. Both issues were sold through a syndicate and caused a storm of criticism at the time. This did not, however, prevent the continued presentation of legal tender notes for gold, though the amount of the treasury notes, which had reached \$156,000,000 in 1894, was now fixed by the repeal of the Act in 1894. Muhleham estimated that for the first issue of bonds made in 1894, \$24,000,000 of gold acquired by the sale of these bonds was drained out by the presentation of treasury notes, so that the Treasurer in the end had only about one-half the amount of the bonds in gold left in the Treasury. This in turn was still further lowered by the continued drain. In February, 1895, an attempt was made to check this drain by a contract with the syndicate which Mr. A. D. Noyes has called "one of the most remarkable experiments in the history of finance." For the 4 per cent thirty year bonds netting 104.4946, the bankers were to furnish 3,500,000 ounces of gold, of which not less than one-half should be secured abroad. The syndicate further agreed to accept 3 per cent bonds payable in gold, reducing the interest 25 per cent, but Congress refused to accept the terms of the contract.

The syndicate at first succeeded on account of favorable trade, but later with a number of adverse conditions and the difficulty of controlling foreign exchange, which is difficult, even under the most favorable situation, the syndicate failed. It did, however, tide the United States Treasury over a possible bankruptcy. The Treasury was forced to make another loan, but in order to avoid the criticism that the loan was under the control of banking interests, the loan was offered at popular subscription, but \$40,000,000 of the \$100,000,000 was paid for in the withdrawal of gold by legal tender notes. As a result the gold reserves continued to decrease; and in the summer of 1896, the bankers, realizing that another bond issue might be the determining factor with the silver campaign, combined with the Treasurer in redeeming the legal tender notes in gold. This action, together with the country's disapproval of the bimetallic standard in November, 1896, caused gold which had been hidden to be brought out, and more important, the withdrawal of gold from the Treasury ceased and sound national credit was restored.

*Forms of Indebtedness.*¹—Modern national funded debt was originally issued in the form of annuities or, as more commonly called, stocks (*i. e.*, securities of perpetual tenure). Some of these issues still exist in Europe. It was maintained by the well known writers of the period that this added so much capi-

NATIONAL DEBT OF SOME IMPORTANT COUNTRIES

Country	Debt 1912*	Estimated Debt 1920†
Great Britain	\$3,479,000	\$37,657,000
France.....	6,343,000	30,494,000
Germany	4,869,000	40,007,000
Russia	4,538,000	54,402,000
Austria-Hungary	3,812,000	35,980,000
Italy	2,578,000	15,009,000
Belgium		1,899,000
United States	1,026,000	26,597,000
Spain	1,804,000	
Holland	465,000	
Bulgaria	171,000	1,158,000
Portugal		
Japan	1,251,000	1,284,000

*William L. Raymond, *American and Foreign Investment Bonds* (1916), p. 27.

†Carl C. Plehn, *Introduction to Public Finance* (1920), p. 352.

tal and as long as the holder of the annuity remained a citizen of the state, the state was not impoverished.¹ The strongest argument against this method is, that the interest rate on a loan cannot be adjusted to changing market conditions. If any attempt is made to purchase it on the market the price is forced to a higher level. Further, as the price of money falls, the price of the annuity automatically increases in the open market.²

The first change from the earlier uses of the perpetual annuity was to that of the payment of the perpetual debt at the government's will. This removed the earlier objections to the criticism mentioned above. Not only can the debt thus be refunded, but the time at which the debt can be paid is determined by the borrowing government itself. As these loans are always payable at par, the original holder never suffers any disadvantage, except the surrendering of a security which may have an advantage over securities of equal value in a particular market. The British consols, which can be paid at the option of the government, are an illustration of this type of loan.

The new government of the United States naturally followed European precedent and first adopted the simple form of perpetual bond issues, but the closeness with which the people came in contact with government affairs caused them to think of the payment of government debt in the same light as the payment of their own obligations. As a result, they favored debt payment. And under the Jackson administration, for the first time in the history of modern nations a national debt was paid. The change came gradually, of course, though the persistency of the movement was apparent. In the law of February 25, 1862, a new clause was introduced known as the "limited option," that is, the debt could be redeemed after a certain date, but not before, at the option of the government. The bond also had a definite maturity date. An example of these issues was the "five-twenties." These bonds could be called five years

¹Leroy-Beaulieu, vol. ii, p. 199, *Traité de la Science Financière* (quoted from Henry C. Adams, *Public Debts*, p. 151).

²Henry C. Adams, *Public Debts* (1892), p. 152.

after the date of issue and were due in twenty years.¹ Small use has been made of this form of contract in Europe and it has been particularly known as the American method. Having a fixed date also gives the Treasury a more definite basis on which to adjust its finances.

But even after transition to the terminable form of loan, some of the European countries² in times of great economic strain have returned to the issues of perpetual bonds as they can be issued with less strain on the exchequer. On the option features, however, the perpetual debt can be funded into terminable securities. This enables the government officials to follow the policy of paying its debts.

Modern finance has come to recognize that debt payment is the soundest method of public financing. This is justified, if for no other reason than that such a policy exerts a temporizing influence upon a nation's expenditures. While the common belief of many is that the British War Loans have no termination date, and thus are a continuation of the old idea of perpetual debts, a careful reading of the loan contract shows otherwise. Where definite maturity dates are not given, definite provisions are provided for paying off the obligation. Other illustrations of pre-war issues are the German Imperial 3 per cent bonds which can be redeemed at the option of the government, and the old French 3 per cent rentes which like all the old German Imperial bonds have no maturity. When the latter government decides to cancel any part of an issue, they are selected by drawings. The decision of the government in the retiring of these issues depends upon the current surplus in the treasury.

Other forms of debt which must be accounted for in the debt obligations of national governments in addition to the funded debt are: current accounts, certificates of indebtedness, currency notes, treasury bills, scrip warrants and other forms of uncovered temporary obligations. These vary in nomenclature among the various countries, though they are practically

¹Ibid., p. 162.

²Even more recent German War Loans were made with provision that the Government would announce redemption terms in 1924.

always created to finance temporary indebtedness.¹ In peace times debts must frequently be met before revenues or taxes are available, and temporary indebtedness of a few weeks or months is assumed until this income is due, at which time the debt is paid. At times the accumulation of these temporary forms of indebtedness becomes so large that a nation is forced to put the obligation into permanent form. This more often occurs during war periods, though ostensibly the purpose of the original issue is not for the purpose of anticipating taxes, but for the issuing of a permanent loan.

Funds are needed quickly in war operations and a nation cannot wait for the slower processes of effecting the sale of the bonds. Temporary certificates of indebtedness are then usually issued and retired with the proceeds of the bond issues. Thus the funds received from war bond issues will often be used long before the bonds have been sold. While all forms of temporary indebtedness are called Certificates of Indebtedness, the name should only be applied to the instruments technically meeting their requirements.²

The treasury bills, another common form used during the recent War, were issued in large amounts without interest but were sold at a discount. Prior to the War these were sold only to financial institutions, but with the attractive rates offered during the recent European War, a wider distribution was secured for some of the issues. After March 1, 1918, treasury bills were issued at a fixed discount rate.

Paper money issues may become a serious incumbrance upon a nation. Following the European War, an abatement of their issue was urged. The year 1919 saw a more positive increase, but a slowing up began in most countries in 1920, with

¹In the discussion of national loans no particular reference has been made to floating indebtedness, as the previous discussion of this type of debt is thought to be adequate. Neither has such so-called uncovered paper as the United States Notes ("greenbacks") of the Currency Notes of Great Britain (Under Act of August 6, 1914), etc., been referred to. These latter forms of obligations and others cannot strictly be called investments.

²Jacob H. Hollander, *War Borrowing* (1919). Professor Hollander gives a very full and complete description of the issuance of these instruments.

probably the exception of Russia. In the latter country, the capacity of the printing presses seems to have been the only limitation of issue. Germany's policy of over-issue of both bonds and paper money, especially of the latter, has placed a burden upon it which will greatly retard its return to a normal financial position. The experience of the United States with the green back issues of the Civil War period, and the added cost alone, in the sale of its bonds, for which it accepted greenbacks in payment that fell as low as thirty-five cents on the dollar, is a striking example of the folly of this method of financing. The net increased cost to the United States government in issuing greenbacks has been estimated by Wesley Mitchell at \$528,400,000.¹ When the increased costs of the European War as well as its aftermath² can be calculated, our own Civil War experiences in this country will seem small in comparison. But no comparison can ever be made with our Civil War experiences, because of government interference and control of prices in this country after the United States entered the European conflict in 1917.

In the study of the total obligations, as far as paper money is concerned, a sharp distinction should be made between the so-called covered or partially covered and the uncovered paper. The British currency notes issued during the War are of the former, and the greenbacks issued during the Civil War the latter type. The cover of these notes should be, partially at least, in gold and in other securities. The ratio of gold to other securities, of course, determines the strength of the notes. The purpose of the British issue was to relieve the strain on the gold reserve and to furnish ample currency, though the government did later use these notes for other purposes. They did relieve the strain in the first months and gave reassurance to all the financial markets of the world as to Great Britain's ability to handle its financial problems.

It has been held that covered notes should not be consid-

¹Wesley Mitchell, *The Cost of Greenbacks in the Civil War*, *Journal of Political Economy*, vol. v, 1897, pp. 117-156.

²The after-war adjustments in Europe, it must be remembered, are still in process at this writing (January 1, 1921).

ered a part of the obligations of a nation. This must depend on how large this cover is, and how able the nation is to redeem these notes in gold; for, after all, the ability to pay gold will indicate a nation's ability to back its bond issues. With uncovered paper money issues, a form of compulsory loan exists. These issues are usually made without interest, are payable at demand or after a fixed period, and usually pass as legal tender. Consequently their fluctuation in price quickly reflects the credit condition of the country, as no other basis of connection exists. If the issues are held within moderation and to actual currency needs, they are of value in steadying the market. The former greenbacks are one of the most interesting illustrations. The status of these issues has been changed since 1900 with the establishment of a gold fund of \$150,000,000 which is available for the redemption of these notes.

Long time funded debt issued for commercial purposes by governments under war strain, or other great emergencies, where goods are sent out from the lending country cannot be compared with loans through which funds are taken out, without giving any direct advantage to the producing facilities of the country. The purpose of indebtedness advanced through private channels to foreign countries is practically always for the same purpose as the former—namely, the advancement or selling of goods to the borrowing country. The larger this private credit can be made with safety, the stronger will be the international financial position of the country. At the close of the War many bankers strongly advocated that the government should have assumed the burden of advancing credit to Europe to purchase goods in this country.¹ This, the United States government strongly opposed. Loans for food stuffs and other commodities, however, were made to neutral countries, such as the \$30,000,000 loan dated August 1, 1919, at 5¼ per cent, to Switzerland.

The very decided advantage accruing to the country lending, is the checking of the abnormal flow of gold, which turns price levels topsy-turvy. Had the United States government

¹Frank A. Vanderlip, *What Happened in Europe* (1919).

not extended loans in the War period to European countries the Allied cause would have been much harder pressed in its efforts to obtain war materials and food and the plethora of gold would have eventually created a price panic in the ultimate readjustment. Europe would have been so utterly drained of gold that it is questionable whether Europe would not have totally discarded the gold standard. This would have left the United States in an unfortunate plight. Hence the advantages in the extension of credit in the buying of foreign bonds reach far beyond those of the individual purchases of these bonds.

Purposes of issue can be placed into the two broad classifications of productive and non-productive purposes. The issue of the Panama Canal bonds by the United States and the French loan in 1907, to the state of Minas Geraes in Brazil, are illustrations of productive issues. All war issues can be placed in the non-productive list. Usually a loan offered in peace times in a foreign country should not be purchased by an investor, excepting where the loan is for productive purposes, and rarely, if ever, is a nation warranted in making a loan except for productive purposes during a peace period.

In war time this practice must often be swept aside, though the advantage to which a nation may place these loans will be largely influenced by the past loans placed. England and France, for example, placed all of their loans prior to the War internally. This clearly reflected the strength of these nations, in absorbing their own loans. The payment of indemnities can be placed in the same category. The contrast between the Chinese indemnity of 1901 and the French indemnity payments of 1871-1874 is pertinent to the point. While the French people under the burden of debt seemed stimulated to greater thrift, the Chinese people seemed unable to rise to this extraordinary need, and were forced to go abroad to secure their loan.

The other purposes for which national loans can be issued are for refunding, consolidation, or conversion of existing issues. In times of war emergency, when new issues must constantly be put out, both because of the uncertainty of the war demands and inability of the market to absorb the total amount of issues at one time, rates will be placed upon subsequent issues,

in order to secure a sale of the issues, as with the Liberty bond issues. Consequently, to induce purchasers, the first issues are usually made convertible into later issues at higher rates. As stated elsewhere, option dates have been included in many of the bond issues of the United States since the Civil War, as in some of the European War issues. This will provide for the refunding of these issues, if the government can secure an advantage in lower rates at a subsequent date or period.

The sale of refunding issues by national governments must be looked upon askance, excepting where bonds fall due during a period of war emergency. Their issuance is usually a reflection, as with the refunding of all civil obligations, of the financial weakness of the government. If the government has utilized all of its available funds for development, thus increasing the wealth and productive power of the country, the story is quite different and the refunding is legitimate. But, if it has spent large amounts for war equipment, etc., which should have been obtained from taxes and revenues, the refunding lacks justification.

Consolidations of issues are frequently of value, in the simplification of the bond issues, in securing better credit, and especially in the reduction in the interest rates which may be secured. One of the best-known examples of this was the consolidated issue made by England in 1888 of the British Consols.

Repudiation and Defalcation.—Since the middle of the last century a number of repudiations of national bond issues have been made. Without an examination of the final outcome of these repudiations, the general public has very naturally assumed that large losses have resulted. To the contrary, the losses for the last quarter of a century have been small, as compared to the losses in corporation bonds in the United States.¹ A number of repudiated national securities which were

¹Thomas W. Lamont states in the *Annals of the American Academy of Political and Social Science* (vol. lxxxviii, March, 1920, p. 123) that, according to the Council of the Corporation of Foreign Bondholders in London from the years 1882 to 1911, the average defalcation each year per \$100 was \$0.39. This compares well with the defaults in the United States in Gas and Electric Companies of \$0.37, railroads of \$1.84 and industrials of \$2.07.

issued prior to this period still are considered as representative of foreign bonds by the larger part of the American investing public. As already stated, there has been no necessity for Americans to familiarize themselves with either foreign national government or corporate bonds. More surplus funds than the United States citizens possessed were needed for the development of state and private enterprises. Consequently, the net yield upon funds invested internally was larger than on European investments. Capital was thus imported and not exported. And as with any people, where a knowledge of complex foreign affairs is not a necessity, the general American public has been indifferent to foreign investment. As a consequence, extraordinarily few facts concerning these securities are generally known, except by a very few banking experts dealing in foreign bonds.

It must not be assumed from this that repudiations have not taken place, for they have. But a settlement of a majority of the defaulted obligations has ultimately been made, though certain individual investors have suffered heavy losses. Nations have come to realize fully that repudiation results in a serious crippling of credit. A nation which has repudiated an obligation, regardless of the justification for doing so, is either entirely denied any further credit from other nations, or must pay exorbitant rates for what funds are obtained. A nation's private enterprises suffer even more. The great commercial and industrial nations have come to regard the payment of national debt as so important that they have used coercion in forcing payment from small nations which have actually repudiated, or attempted to repudiate an obligation.¹

England's foreign investments are probably the best criteria of the losses which have been experienced by the investors in foreign securities. With the policy of combination purchases subsequently referred to, the British have cut their losses to an astonishingly small figure.² Not infrequently a temporary collapse has taken place, but with an eventual recovery and full

¹The settlement of the Venezuela indebtedness in 1903 with the signing of the protocol at Washington as a result of the default in 1901 is a good illustration.

²Interesting data are given on these experiences throughout C. K. Hobson's book on *The Export of Capital* (London, 1914).

payment of obligations. Where individual purchasers have held securities, such as the early Argentine bonds, and have had to wait for their payment, the burden of carrying them has been costly. This difficulty, however, is obviated by the wide distribution which can be effected by large purchases through trustee organizations. Temporary holding up of payments under this form of buying can be carried without the penalizing effect it would have upon the individual investor. This is carrying the principle of diversification to a more complete extent. It should be adopted in greater part at least for all small investors. This would not, of course, apply where the purchaser of stock desires to assume the risk of entrepreneurship and its possible gains. This is, however, a speculative and not an investment risk.

The causes of state defalcation have long been attributed by the general public solely to political difficulties. While political causes of repudiation are the most difficult to cope with, external obligations repudiated for political reasons, in the last quarter of a century, have been met when the repudiating government has regained its equilibrium. A number of the repudiations attributed to political causes have been due to economic reasons, though they have been as frequently a combination of both. But, as was strongly maintained in an earlier chapter, economic pressure tends to foment dissatisfaction with existing governments, or legal subterfuges are created to relieve economic pressure. Russia is today the only country which for purely political reasons has wilfully rejected the obligations created under the monarchy. Whether Sovietism maintains or is replaced, the government in power, if it is to retain its place, must eventually pay. The effect of non-payment by a nation is too costly upon its credit.

The attitude of some of the governments to the south of the United States seems to have been one of indefinite postponement or indifference to their obligations. Reluctance or indifference of payment has no doubt been aggravated by the ill-fated experience of the projects for which some of these obligations were assumed. Honduras, whose external loan has been defaulted since 1873, is an illustration. Funds in this case were raised

for the purpose of building the Interoceanic Railroad. The failure of the nefarious affair is more attributable to the high-handed robbery of certain American and English promoters than to the fault of the Honduras government.¹ Ecuador's more recent default of its 4 per cent Salt Bonds and of the two guaranteed railroad bonds of the Guayaquil and Quito Railway² can more justly be laid to political causes. Repeated requests have been made by the State Department for a settlement, and payments are now being made on the installment plan. The default of issues of Guatemala and Mexico were due to a combination of political influences and gross neglect, more to the latter, however, than the former. Mexico has never offered any direct repudiation, but since 1914 has continually come forward with the plea that it was unable to meet the obligation, but would resume payments as soon as normal conditions return.

Brazil's inability in 1913 and 1914 to meet the interest on its bonds was entirely due to economic causes. With the severe business depression and the keen competition developed by the Strait Settlements, rubber plantations, and other regions of the Far East, the price of rubber fell to low levels. As Brazil must use rubber, one of its chief exports, to meet its obligations, this fall in the price of rubber prevented it from paying the interest charges of its bonds on August 1, 1914. Another difficulty at this time affecting all markets was the war development in Europe. A plan was formulated by English capitalists for the funding of interest charges for three years at 5 per cent. At the end of this period payments were resumed. Brazil has been passing through an over-developed period much the same as the railroads in the United States did in their early career.

Considerable blame must be placed upon the underwriters who furnished capital to these countries without making adequate examinations of their early experiences in financing. The temptation of the enormous gains could not be resisted,

¹Hartley Withers, *International Finance* (1916), chap. vi. In this chapter will be found a short sketch of this episode.

²The last available report showed the amount of these bonds for this railroad to be: \$2,245,950, 6% Prior Liens and \$14,219,900, 5% First Mortgage Bonds, together with interest.

and sound financial investigations were thrown to the four winds. Resources of the country were often inadequate, and the treasury of the country overburdened with a debt which it was impossible to carry. As long as the debts of the future in the strong Latin-American nations to the south do not over-reach the ability of their resources to pay for their obligations, there is no more likelihood of default than there is with the United States. The former defaults of both Argentina and Brazil clearly resulted from an over-development and a consequent inability to pay. While it is true that revolution was the cause which brought these conditions to an immediate crisis in Argentina, the deeper-seated causes of these insurrections were economic.

Foreign Investment Trusts.—As far as national control enters into the control of international financial affairs, this can best be secured by large corporations or investment trusts purchasing foreign securities. The method followed by such English organizations,¹ known as investment trusts, is to issue their own notes or bonds against these securities. In this way they can obtain not only larger holdings, but secure more favorable terms; and with the large amounts of their funds they can provide the diversification essential in distributing risk and thus secure greater safety for the security holders. The possibilities in reduction of risk under this type of diversification are almost unlimited. The purchases of these trusts are not confined to civil obligations, for some buy nothing but corporate securities. This protection has been effectively accomplished by national organizations of security holders. The Corporation of Foreign Bondholders in England, organized in 1868, is probably the best known of these organizations. Under the present Incorporation Act the representation on its council is composed of six members chosen by the Central Bankers' Association, six by the London Chamber of Commerce, and the other nine by the Council as

¹According to the *Stock Exchange Intelligence*, 1919, there are approximately four hundred of these organizations. As Albert W. Kimber points out in his book on *Foreign Government Securities* (p. 114) the capitalization of the British Investment Trusts is not as a rule large. Neither does it necessarily need to be very large to secure a considerable diversification in investments.

a whole. This Council both looks after the protection of its security holders and gathers data concerning the securities held. In case of default, difficulties or injustices to particular security holders, this organization makes representations in the behalf of the security holders affected. It has made adjustments which total nearly five billion dollars. France and Holland both have similar forms of organizations. The Investment Bankers' Association of America also has a permanent committee known as the Committee on Foreign Securities, which purports to perform a similar service for the American foreign security holders.¹

The foreign financial relationships of the United States are still too new to effect a very large immediate development of this method of bond purchasing. It does not have the tangible appeal demanded by the average American investor. National development in investment buying has not yet reached that stage in its evolution. Machinery, however, for foreign investment has been created by which institutions can be provided to carry on functions similar to those of the English Investment Trusts. Needless to say, institutions of this character must be created which can absorb large funded obligations if the United States is to take over its permanent share of foreign trade.²

The so-called Edge Act, though primarily created for foreign trade purposes, provides for the corporations organized under the act to deal in foreign securities. Any five or more individuals with a minimum of \$2,000,000 in capital can organize for the purpose of promoting trade. The organization must be under the control of United States citizens and the supervision of the Federal government. Included in the provisions is the power to accept foreign securities which may be used as security for the issue of the corporation's own debentures. The act further provides that these corporations can invest in other corporations engaged in international trade to the extent of 10 per cent of their own capital stock and surplus, and in bank-

¹Investment Bankers' Association of America, Bulletin, July 19, 1919.

²The American Foreign Securities Corporation during the war demonstrated the ability of an American organization to perform this function. It was organized with a capital stock of \$10,000,000. Against securities pledged by the French Government it sold in 1916 its 3 year 5% Gold Notes which were paid at maturity to the amount of \$94,500,000.

ing corporations to 15 per cent of their capital stock and surplus.

The powers conveyed under this act, however, were not primarily supposed to serve the functions of investment organization, but to furnish the machinery for the current financing of foreign trade. The institutions which can be organized under some of the state laws will more nearly meet the requirements.

A broader Federal law providing for this particular need would, however, work much more effectively.

The American Market for Foreign Securities.—American international bankers are generally agreed that if this country is to have an uninterrupted growth in the future, a foreign security market must be developed in this country. The position held by the United States during the War can be maintained only by the maintenance of the present credit and extension of additional credit. Prior to the War the export of goods was normally greater than the import of goods. This balance was offset by our payment of large interest charges, freight charges and other services and payments to Europe. At the present writing the reverse situation which developed during the War still prevails, and credit is needed elsewhere to pay these balances. To retain this position, it will be necessary to continue our investment in foreign securities.

The depreciated exchange rates, also existing at this writing, in many foreign countries, cannot be restored to normal, until more complete credit facilities are made possible to these countries. In the long run, the country possessing the advantage in the exchange rate suffers as much as the country with the depreciated exchange rate. If depreciated exchange rates long continue, American trade will confront increasing difficulties, as each point in the decrease of the exchange rate means a relatively larger decline in the purchasing power of the country with the depreciated rate. Consequently, the more rapidly exchange rates can be brought back toward normal, that much sooner healthy trade relationship can be established with Europe. Even in a less severe slump in exchange rates, the same forces tend to operate, and only when normal balances in trade are re-established will these rates be restored. While these countries

even under these severe handicaps will eventually recover, the process is painfully slow, and the advantage to our own industries, arising out of these peculiar conditions, will be lost.

As industries in our country during the next half century will far exceed their markets, if not handicapped by financial difficulties, it behooves the nation to take some forethought of this situation. It will be necessary to find new and broader markets to dispose of these products. And broader markets will tend also to give greater stabilization to industry. All the leading European nations are now perfecting far-reaching plans to re-establish themselves in their old and new foreign markets, so that with the return to normal conditions they will be in control of these markets. Further, "trade always follows the investment in a foreign country." "Without markets industry is destitute; and without foreign investment, foreign markets are not to be had. The alternative is to lend our money to other nations. . . ." Unless this can be done, as this same author suggests, we will be undersold in foreign markets. As long as our own markets can absorb the greater part of the country's production of goods, this latter statement need not be given very serious consideration—but if it cannot, then there is no alternative for us.

The position which the United States occupied in the pre-war period is best illustrated by the ratio of its foreign security holdings. Out of approximately 2,200 securities on the New York Stock Exchange on January 1, 1914, there were 14 foreign issues, whereas the foreign securities listed on the London Stock Exchange were approximately 48 per cent of the total listings and on the Paris Bourse 40 per cent. The total listed and unlisted foreign loans in this country are now slightly over the half hundred mark. This includes some of the short duration issues, though it does not include the loans advanced by the government. It is evident that relative to the holdings of the leading European countries, foreign security holdings in the United States are still small.

¹James Sheldon, *The Need for American Investment in Foreign Securities*, *Annals of the American Academy*, vol. lxxxviii (March, 1920), p. 119.

The advantages of well-selected foreign government securities will give unusual diversification to the holders' investments. It is now common knowledge that one of the reasons for Great Britain's ability to adjust itself so rapidly to the financial demands of war was the great diversification of its investments. With the great holdings in American securities, Great Britain was able to mobilize, and sell back; consequently it not only secured immediate credit, but instilled great confidence by its ability to handle financial problems. While, as stated in chapter two of this book, large diversification in foreign holdings is more important to small European countries than to our own because of our great geographical area, holdings in other countries during a war, would be a decided asset.

Of the ability of the United States market to absorb foreign securities no question need now be raised. Neither can any question be raised as to the necessity of future investment in foreign holdings to protect our own markets. For, if markets are not maintained, industry is checked—earnings fall off and savings with which investments are made possible, correspondingly slow up. With the ability to buy and the need and desirability for the purchase of foreign securities, the market is ripe for development. If in 1920 we had possessed greater familiarity with some of the foreign markets, the distribution of foreign securities would have been even much larger. But without doubt the next quarter of a century will see a very substantial holding in both foreign government and foreign corporate bonds.

Price of Government Bonds.—The net yield of government bonds directly reflects the credit of the issuing country. Peculiar conditions, such as the market for the United States 2 per cent bonds or the temporary market of the British Consols in the nineties, may create an artificial market. Prices under these conditions would obviously not reveal the true credit of the issuing nation, though a comparative study of the prices themselves will, over long periods, reflect the strength of the national credit. Occasionally the market of a national government bond will be absurdly out of line with the nation's credit, but this is the exception and not the rule.

Shifting price levels will always have an immediate effect on

the price of government bonds. While this effect may only be fractional on low-yield government bonds, it is comparatively as great as with other high-grade bonds. The long downward trend of bonds of all first power European countries after 1898, even after an allowance is made for the changes in the nominal rates, was due, as previously stated, to the world-wide increase in price levels.¹ Adverse political agitations may for a time depress prices, but they will not continue to do so very long. This is illustrated in all the experiences of the English, French, and German bond prices during the past century.²

War will always depress the price of government securities regardless of a nation's strength, though the country's credit may be in no way impaired. Military successes or reverses will on the other hand always have an effective influence in forcing a price change, especially among the weaker nations. Where the nation has been so markedly defeated as have certain European countries in the recent War, the national credit is so impaired as to force the prices of the securities of these governments below their actual value. But when the only guarantee of a government is its will to pay, values must be viewed from other than the financial ability to pay. A comparison, however, of the prices of the securities of strong national governments, will show less fluctuation than in any other class of securities.

Money market changes of two or more foreign countries will immediately reflect themselves in the securities of these governments. These changes in the normal rates for money are usually temporary, and result only in short speculative swings. Again the general discussions on markets and prices in the previous chapters are applicable here.

¹United States, *National Monetary Commission*, Senate Document, No. 570, pp. 278-282.

²Thomas W. Lamont, *Foreign Government Bonds, Annals of American Academy of Political and Social Science*, vol. lxxxviii. (March, 1920), p. 122.

APPENDIX

- A. Catalogue of Bonds.
- B. Table of the Present Outstanding Liberty Bonds of the United States Government Together With Their Important Regulations.
- C. Income Analysis of the American Telephone and Telegraph Company.
- D. Selected Topical Bibliography.

APPENDIX A

CATALOGUE DESCRIPTION OF THE MORE IMPORTANT BONDS

[A more complete discussion of the bonds followed by a (*) will be found in the subject matter of the text.]

Adjustment Bonds.—These bonds, of which very few are outstanding, have been issued in railroad reorganizations, for the purpose of readjusting the old funded debt; (*i. e.*, bonded debt), usually for the purpose of scaling it down.

Anticipation Tax Warrants.—(See Revenue Bonds).

Assented Bonds.—When an effort is made to reorganize a road, it may be necessary to submit a plan asking for concessions from the bondholders. If they assent, the bonds or notes are sent to the designated depository, and this condition is stamped on the bond. (These Bonds are frequently called Stamped Bonds.) The bonds are then transferred, subject to these new conditions.

Assumed Bonds.—When a corporation purchases another corporation and agrees to pay the principal and interest of the latter corporation's bonds, these bonds are called Assumed Bonds. If these bonds have a specific lien, this lien maintains, and any loss of identity of the old company does not affect the value of the bonds.

Blanket Mortgages.—Mortgages issued as security on one debt and secured by a number of separate properties, or a group of properties, are termed blanket mortgages. They are closely akin to the general mortgages, and the two terms are not infrequently used interchangeably. If, however, accurate technical distinctions are adhered to, a difference should be made between these two mortgages.

General mortgages cover different properties, but are managed and operated as a unit under the control of one corporation. Blanket mortgages may be placed as they generally are, on several properties that are wholly unrelated.

Bonus Bonds.—The strictly bonus bond is an old form, which was issued to corporation promoters, or sold by a municipality to pay promoters of an enterprise who established an industry within its borders.

Bridge Bonds.—These bonds are issued both by municipalities and private corporations for the purpose of erecting large bridge structures.

Where the structure is very large, or is to be used by several systems, railroads usually organize a separate company for the purpose of financing it. In some cases, as in the organization of wharf or terminal companies, the company is forced to avoid the "after acquired property clause" in the mortgage to secure sufficient funds, and this fact necessitates the organization of the separate company.

Callable Bonds.—A bond which has in the instrument a clause providing for the retirement of the bond before its maturity is a Callable Bond. This clause may give the privilege of calling the bond in whole or part or both. When a call has been made for an issue of bonds, the interest ceases at the designated date of retirement. If the corporation has complied with all the legal requirements of notification, the security holder can claim no further interest if he neglects to surrender his bond on its due date.

Car Trust Bonds ()*.—When the Equipment Association (organized for the purpose of financing the railroad's equipment needs) leases the equipment to the railroad and the lease itself is used as a direct security for the obligation, the bonds are termed Car Trust Bonds, as distinguished from the Car Trust Certificates which represent certificates of participation in the Association. In the issuance of Car Trust Bonds, the lease of the equipment securing the bonds is assigned to a trustee and the bonds as already stated are issued against this security.

Car Trust Certificates or Notes ()*.—These certificates are issued by equipment associations, corporations or individuals which lease equipment to railroads with the contract in the lease providing for the payment of the obligation with the payment of the lease. As the lease is paid annually, or semi-annually, the payment to the purchasers is usually made in serial form. Few of these obligations are retired by means of the use of a sinking fund provision. Formerly, individual warrants were issued covering the payments of the separate rentals; this is no longer considered necessary, as they are fully covered in the lease. (For a more complete discussion see Chapter on Railroad Equipments.)

Certificates of Beneficial Interest.—These securities, strictly speaking, are merely a modification or form of the Collateral Trust Bonds. Certificates of Beneficial Interest have been used chiefly in acquiring control of corporations with a minimum expenditure of money. The stock of the corporation to be controlled is deposited with a voting trust and the Certificates of Beneficial Interest are issued against the deposited stock, the security of the certificates depending upon the assets and earnings of the corporation.

Certificate of Indebtedness.—A certificate of indebtedness represents a temporary debt of a municipal corporation, which is drawn up in more formal form than the promissory note. Where the loan is a large one, notes of smaller denominations are often issued against this indebt-

edness. If defaults in payments take place the holder may ask for receivership. (See Town Warrants.)

City and Town Bonds (*).—(See Text for discussion of these issues.)

Collateral and Participating Bonds.—(See Participating Bonds and Collateral Bonds.)

Collateral Income Bonds.—The principal of these bonds is secured by collateral paper (see Collateral Trust Bonds) and the interest payments are dependent upon earnings. (See Income Bonds.)

Collateral Mortgage Bonds.—These Bonds are secured by collateral paper which, in turn, is directly secured by a mortgage lien. (See Collateral Trust Bonds.)

Collateral Notes.—These securities have the same characteristics as collateral trust bonds except in so far as notes differ from bonds. (See Collateral Trust Bonds.)*

Collateral Trust Bonds.—The collateral trust bonds, are those bonds which are secured by other collateral securities (bonds or stocks). These collateral securities may be the securities of the issuing company, its subsidiaries, or the securities of other companies. Hypothecated securities of companies, foreign to the issuing corporation, other things being equal, are the most desirable form of collateral security. Where the issuing company has had the privilege of substituting other collateral of equal value and the deed of trust has been badly drawn up, the holder of the security has little protection. This fault has been a not uncommon weakness, of an otherwise desirable collateral trust bond. When the terms of the trust deed have been approved, unless an examination of the issuing corporation and the corporation whose securities have been hypothecated can be made, it is of little use to examine the security further for a conservative investment.¹

Collateral securities have occupied a prominent place in railroad financing, since the original issue of the Union Pacific in 1879. For a number of years the use of collaterals was the favorite method of financing. The separate state jurisdictions forced the organization of separate companies within each state. These companies could not often market their own securities, and the parent company was compelled to take the securities of these subsidiaries and use them as security for its own issues.

Since 1897, collateral trust bonds have been used in the financing of the holding company.² This form has a decided advantage to the corporation in the readiness, as compared to other bonds, with which the bonds can be withdrawn and the bonds or stocks securing the debt can be

¹Thomas Warner Mitchell, *Quarterly Journal of Economics*, vol. xx, 1906, pp. 445-467. (This is the best single article on Railroad Collateral Trust Bonds.)

²W. Z. Ripley, *Railroads, Finance and Organization*, pp. 143-156.

sold. The corporation also has the advantage, if provided in the trust deed, of substituting the underlying collateral. This privilege has been particularly abused in real estate bonds. There is also a temptation for the corporation to use its collateral holdings for speculative purposes, and a good many holders of these securities have suffered heavy losses through the unfortunate attempts of corporations to enrich themselves. To safeguard against this, no exchange of collateral should be allowed except by very specific regulation given in the trust deed.

Distinction is seldom made between a collateral mortgage secured by stocks and one secured by bonds. Even conservative investors, who would never buy stocks, purchase collateral issues secured by the weakest stock. As a speculative purchase, these issues are very desirable. Collateral bonds secured by stocks will not only fluctuate more widely in sympathy with the stocks securing them, but they are very much more sensitive to market changes. If the collateral bonds are used as a means to pay off the floating debt, or are secured by such of the company's own securities as could not be marketed and were later used as collateral, they are fraught with possible weaknesses.

Consolidated Bonds.—(See Consolidated Mortgage Bonds.)

Consolidated and Refunding Mortgage Bonds.—(See Consolidated Bonds, also Refunding Mortgage Bonds.)

Consolidated First Mortgages.—(See Consolidated Mortgage Bonds.) These bonds are based on a first mortgage on all properties which have been consolidated. Other mortgages may exist on the separate properties, but this is the first issue on the combined properties.

Consolidated Mortgage Bonds.—The title of many bonds having this prefix does not always convey what the name might seem to imply. Consolidated mortgage bonds are used in two quite distinct meanings. Strictly speaking, consolidated mortgages are secured by a mortgage on all the properties of a number of subsidiary companies which have been consolidated. A second use of the consolidated mortgage bond is in the issuance of bonds to consolidate a number of issues, coming due at some future date, on separate properties already consolidated under one organization. Provision in such a mortgage should be made for a trustee to hold the amount unissued which is to be used for the retirement of maturing issues. When used for this purpose the issue is similar to a refunding issue. As in refunding issues, provision is also generally made for an amount to be expended in improvements and extensions at a certain ratio to the cost of these improvements. These expenditures should always be capital expenditures.

If mortgages are already outstanding on the separate properties, the consolidated mortgage is subsequent in lieu to these mortgages, and is in relatively the same position as a general mortgage. If no mortgages are outstanding on the several properties, the consolidated mort-

gage is a first lien and in the same position as a first mortgage. The consolidated issues have been used almost wholly by railroads.

The priority of the liens, under the division of the character of the lien, is relative, and it is in this particular division that the descriptive title must be especially checked with the description of the mortgage. In this regard the general classes of the consolidated, the refunding and the general mortgage issues are apt to prove the most troublesome. It is a very common practice to use all three of these classes for the purpose of retiring outstanding issues. The consolidated mortgage, in its simplest form, is secured by properties consolidated under one company. When it is subject to a number of mortgages on the various companies consolidated, it is the same as a general mortgage which is a general or blanket lien on all of the properties. If provision is made in either of the issues, as well as the refunding issues, to replace all issues prior to them, it eventually becomes a first mortgage bond. The term consolidated mortgage bonds is also loosely used in practice. Where the issue refunds the various mortgages on an already consolidated property, it is, strictly speaking, a refunding issue, and where the issue is the first of its kind, as a first consolidated mortgage, it must not be taken for a first lien issue; it is only the first consolidated issue which is outstanding upon the properties.

Regardless of the technical differences and the similarity between the refunding, the general, and the consolidated issues, they denote the common trend toward the simplification of mortgage issues which is commented upon elsewhere. As consolidations cannot continue with the same frequency in the future as in the past, because of the limits placed upon them by state regulations, the refunding and general mortgage will be in the ascendency. The former seems to be the more commonly favored at present.

The open-end-mortgage, as referred to in the discussion of refunding issues, has become one of the important features in many mortgages in the last ten years. This clause allows the company to issue additional bonds of an authorized mortgage having a given amount already issued. The usual limitation placed upon the amount of the increase is that it be not more than a given per cent of the cost of the property purchased or constructed (most commonly 75%), and frequently the added requirement that the earnings be equivalent to a given number of times the interest charges on both the outstanding and purposed new issue. This privilege leaves the company unhampered in its development and yet places upon it restrictions that should protect the investor and increase the value of his holding. The difficulty to date of these "after acquired" clauses, is their trusteeship. The common practice has been to accept the company's statement that it has fulfilled the necessary requirements. A more careful auditing and examination as to the proper fulfillment of this contract, for the protection of the investor, must be

made before the trustee can serve the best interests of the investor. Some of the more recent mortgages now provide for the proper checking up of the company's financial status when the company seeks to issue additional bonds under this clause in the mortgage. Under proper trusteeship, this privilege of future issuance out of an authorized issue must serve as one of the most valued additions to the modern corporate mortgage.

Construction Bonds.—When bonds are issued against properties in the process of construction, they are frequently called construction bonds. In most cases these construction bonds are replaced by permanent issues. The term has never been very exactly used.

Continued Bonds.—(See Extension Bonds.)

Convertible Bonds.—Convertible bonds are those bonds which may be converted into other securities, usually stock of the same company issuing the bonds. This conversion is, however, regulated by certain requirements set forth in the mortgage instrument. The convertible bonds since 1900 have grown very much in favor. The holder of the bond under the limitations in the trust deed, may, at his own option, convert his bond into other securities of the same corporation. Some few issues make the conversion into securities of other companies which are generally allied to the issuing corporation. They have been more commonly used by railroads, and the bonds given the privilege are usually debentures or some junior lien.¹ The conversion dates are after a certain date or within certain dates, and frequently both limitations are used. Most issues also give the company the right of redeeming the issue having the conversion privilege before maturity at a premium. Where conversion is put some time in the future, and danger to the company or certain controlling interests has existed in wider control, the company has often called the bond before the conversion privilege date.

Mr. Rollins has characterized these securities as a "Call" upon the company's prosperity. To that degree, they have been speculative risks. When the market has been overloaded with issues or the company is in a strained condition, or the market badly depressed, these issues have been more freely used. The periods of greatest activity in the use of these issues were in 1868, 1875, 1893, 1903, 1907, and 1913.

A number of strong companies forced to go into the markets at these times for funds have used them to advantage, while weaker companies at such times have frequently been forced to the use of the

¹Montgomery Rollins, "Convertible Securities" (Boston, 1913). This work gives a very complete introductory discussion of convertibles, which is followed by a description of all convertible issues in the United States with complete tables of conversion prices. Also see the same author's article in *Annals of American Academy of Political and Social Science*, vol. xxxv (1910), pp. 97-107.

short termed note.¹ In extensive new construction or in financing under any of the foregoing conditions, the convertible bond has been much cheaper than either the bond without this privilege or the straight stock issue. As the author just referred to states: "The fixed charges become transformed into contingent ones, with the progress of the conversion of bonds into stock. And this process of conversion is automatic in its actions. The plan in short is that of an automatic sinking fund."

A corporation, on the other hand, may be compelled to carry a large interest charge in the face of a continued market depression. For some corporations, this might seriously affect credit, whereas with others, it would only depress the price of the stock which in turn would depress the price of the convertible bonds depriving the holder of his speculative advantage. It is a commonly accepted theory, that the relatively low price of Pennsylvania stock has been in some measure due to the large amount of its convertible bond issues. As with all bond issues, convertible bonds depend for their pure investment value not upon the privilege of conversion but upon the soundness of the corporation.

The price of the convertible bond generally will follow the price of the stock into which it can be converted in an ascending market, so that either the sale of the bond or its conversion into stock will give the advantage of the profit. In a falling market, the price of the bond will follow the price of the stock to a certain point; beyond this, it will not follow. That is, the bond price will not fall below its own investment basis. If the bond at par can be converted into stock at 120, and they are both at these respective prices, there is no advantage in conversion. Two movements would make conversion profitable. If the price of the stock alone advances, it would be profitable to convert, or if the bond price alone drops, conversion would be profitable. The movements of convertible bonds, as a class, because of this conversion privilege, have relatively greater range than those of other securities with equal security.² But as pointed out in the discussion of principles, whenever an advantage is secured in an investment it must be paid for by an offset of some other disadvantage. Whether this privilege is the one wanted, must be determined by each individual investor. Certainly, for the permanent investment of one who is unfamiliar with the financial market, the convertible security is not the kind of investment to be purchased.

Convertible Collateral Trust Bonds.—(See *Convertible and Collateral Trust Bonds.*)

¹W. Z. Ripley, *Railroad, Finance and Organization*, p. 158.

²There are so many experiences and angles of approach which must be examined in a study of convertible security prices, that it is only practical to state the more common conditions affecting the general movement of their prices. The reader who is interested in a more complete study of convertible price movements is again referred to Mr. Rollins' articles and books.

Convertible Debentures.—(See Debenture Bonds.)

Convertible Income Bonds.—(See Income Bonds.)

County Bonds (*).—(See Chapters on Civil Loans.)

Coupon Bonds.—Bonds to which interest coupons are attached can be classed as coupon bonds. These coupons are interest certificates attached to the instrument of the bond representing the principal. Each coupon attached represents the interest due for a certain period, now practically always six months. The number of coupons attached to a bond is determined by the duration of the bond. The due date of the interest coupon is always stamped on its face, and at maturity the coupon can be cut off and presented for payment at the corporation's office, or a bank, or to an individual acting as its agent. Coupons do not ordinarily have the name of the owner on them, so that they pass without indorsement and are independent of actions which bind the registered principal. (For more complete discussion of Coupon Bonds, see chap. viii.)

Coupon Notes.—Notes with coupons attached are termed coupon notes.

Cumulative Income Bonds.—(See Income Bonds.)

Currency Bonds.—Bonds payable in lawful currency (any legal tender) can be classed as currency bonds.

Debentures.—(See Debenture Bonds.) The term debentures is used as an abbreviation for all forms of corporation debenture bonds or mortgages.

Debenture Bonds (*).—Corporate debenture issues are an unsecured claim against all assets of a corporation with no stipulation as to any specific assets. The whole of the debenture group is an adoption of the English conception of the value of a mortgage, namely, that the value of the bond depends directly upon the earning power of the corporation. They are virtually formal promissory notes. While we shall always retain the advantage of the specific lien, the tendency toward the simplification and consolidation of issues is a partial recognition of the correctness of the English principle.¹

The debenture holder has no specific claim against the property of a corporation and cannot bring foreclosure proceedings. As a preferred creditor he can institute proceedings for a judgment or the appointment of a receiver. For protection against additional mortgages that might be given prior claims to a debenture holder's preferred claims, the debenture instruments now contain clauses that give them a priority of claim against subsequent issues.

A historical study of debentures in the United States reveals the

¹Hartley Withers (Stocks and Shares, p. 96), (advocates the advantage of the specific mortgage over the debenture in the power of foreclosure).

interesting conclusion that the majority of these securities have been issued by corporations in either a very weak or in a very strong position. The use of debentures by weak companies is easily explained. If they were compelled to issue a third mortgage, or any other junior lien, it would either have to be sold at a large sacrifice or it could not be marketed, so they have been able to use the debenture to advantage. With the better understanding of securities, this has become less possible and the market prices of the weaker debentures have reflected this in recent years. To companies of strong credit, in addition to eliminating a specific mortgage, debentures offer the advantage of being retired without the longer formality of the specific lien bonds.

Debenture Income Bonds (*).—Bonds which possess the general lien on assets as to security of principal, as with debenture bonds, but with the interest due when earned, are termed debenture income bonds. The term income bonds is often used interchangeably with debenture income bonds, but as the former bonds, at times, have a mortgage lien, and the latter issues do not, the two titles should not be used interchangeably.

Debenture Mortgage Bonds (*).—(See Debenture Mortgages.)

Debenture Mortgages (*).—The debenture mortgages are an old form of issue which are now seldom used. These securities are issued upon the security of mortgages and are deposited with a trust company or trustee. They are usually issued at a lower rate than the mortgage securing them.

Deferred Bonds.—These bonds can be issued under two entirely different conditions. First, the interest payments may be deferred until after some future date. Second, the rates may gradually increase up to a certain date after which the rate remains permanently at that amount.

Delinquent Tax Certificates.—These certificates usually have been issued on land against which taxes were unpaid. The uncertainty of their duration and the difficulties in maintaining the priority of title have not made them very desirable for investment purposes.

Development Mortgages.—A security issued to secure funds for improvements, developments, etc., is termed a development security. It may have a first lien upon the developments, or it may rank as a junior lien or it may be in the form of a general mortgage. (In the latter case it is generally called a Development General Mortgage Bond.)

Dividend Sharing Bonds—(See Participating Bonds.)

Divisional (or Division) Bonds.—These bonds are issued by railroads or street railway systems and are secured by a mortgage upon a division, *i. e.*, part of the system, but in most cases they are made a direct obligation of the railroad corporation. If the bond is on the property of a subsidiary corporation and issued by the parent company, it is also a divisional bond. If it is a bond on a subsidiary company and it is

assumed by the parent company, it is often called a divisional bond, though strictly speaking, it is an assumed bond.

Dock Bonds.—(See Wharf Bonds.)

Drainage Bonds (*).—These bonds are usually issued by specially created Municipal Districts for the purpose of reclaiming the area included within the district by constructing adequate drainage facilities.

Drawn Bonds.—(See Callable Bonds.)

Electric Light Bonds (*).—(See Chapter on Electric Light and Power Bonds.)

Equal Installment Bonds (*).—These bonds are paid off in equal installments. When the principal and interest payments have been equally distributed in serial payments, the allotment to the interest payment grows smaller and the amount available for the principal to be retired becomes larger.

Equipment Bonds (*).—When the equipment is sold to the railroad on conditional sale, the title is assigned to a trustee and bonds are issued against the equipment. As the railroad can have no claim to title until the complete obligation is paid, the holder has a complete claim against the title of the equipment assigned to the trustee. With the final payment of the last installment of the obligation, the title passes to the railroad company. (See Chapter on Equipment Securities.)

Express Company Bonds.—These bonds, which are issued by Express Companies, are limited in number. There are only four large express companies in the United States.

Extended Bonds.—When the payment of the principal of a bond has been extended to some future date by mutual agreement of the company and holders of the bond, the latter is termed an extended or continued or renewal bond. As a rule this extension privilege is stamped on the old certificate. The security remains the same. The reason for the extension may be to avoid the necessity of refunding into a new issue or to await a more opportune market to float a new loan.

Extension Bonds.—Extension bonds are practically always secured by a first lien upon an extension of a railroad, and are usually guaranteed by the issuing corporation, and the extension bond is made a general obligation against the company. These bonds are not infrequently used to provide funds for other parts of the property. When other property is also given as security, they are subject to the existing liens. The amount issued should be fixed at some ratio to the cost of construction. The majority of companies make this 75 per cent. The authorized amount unissued is made subject to the same regulations when issued.

Farm Mortgage Bonds (*).—Bonds secured by a farm mortgage or mortgages, come under this classification. It is a common practice now for large dealers in farm mortgages to issue bonds on farm mortgages. A

clause in the contract permits the dealer, or corporation, to replace the maturing mortgages, securing the bond with mortgages of equal value. The issuances under the Federal farm mortgage statutes are issued under similar conditions.

Ferry Bonds.—Ferry bonds may be issued by an independent ferry company on its ferry boats and other property, though independent ferry companies are more commonly organized by a terminal or railroad company for the purpose of constructing ferry boats or wharves.

First and Consolidated Mortgages.—The “First” indicates a first lien. How much of the property is included under the lien can be ascertained only by reading the instrument. The consolidated feature is upon the whole or a portion of the consolidated properties and is usually a remote junior issue. (See Consolidated Mortgages and First and Refunding Mortgage Bonds.)

First and General Mortgage Bonds.—Bonds which are a first lien on a part of the property and a general lien on all of the remainder of the property would come under this classification.

First and Refunding Mortgage Bonds.—This bond is a first mortgage upon a part of the corporation's property, as indicated by “First,” and also is used to refund other outstanding issues, which are likely to be junior issues. This is one of the best examples of the inexactness of our bond terminology. Many purchasers have interpreted the prefix “First” as indicating an entire first lien, when as a matter of fact, the lien may be on a very small proportion of the property.

First Consolidated Mortgage Bonds.—These bonds are the first consolidated issues made by a corporation. (See Consolidated Mortgage Bonds.)

First General Mortgage Bonds.—These bonds are the first general mortgage bonds which have been placed upon the property. Their lien can be determined only by reading the mortgage instrument.

First Mortgage Bonds.—Bonds secured by a first mortgage are included in this division. These bonds should not be judged on the merits of the term “first” but on the equities securing the bond. First mortgage bonds are not always a lien on all of the property of a company. As a company expands, the first mortgage only continues as a claim on its original security. If other properties are purchased and merged or a consolidation is made, other first mortgages or liens may exist, distinct from this one, on other portions of the company's properties.

First Liens.—(See First Mortgages.)

First Lien and General Mortgage Bonds.—The “first” lien means a first claim on a part of the property and the second part of the issue indicates that it has a general claim on the property which is a junior issue. (See First and Refunding Mortgage Bonds.)

First Mortgages.—(See Mortgage, First Mortgage Bonds and Second Mortgages.)

First Mortgage Trust Bonds.—First mortgage trust bonds are bonds secured by a lien on bonds deposited as security, which are secured by a first lien. (See Collateral Trust Bonds.)

First Refunding Mortgage Bonds.—The first refunding bonds are the first refunding bonds issued by a corporation. Their lien depends upon the issue, or issues, which the refunding bonds replace. A part of the issue may replace a first mortgage, but not necessarily so.

Firsts.—(See First Mortgage Bonds.)

First Trust Mortgages.—(This is a vague and illegitimate use of a mortgage title.)

Founders Bonds.—These bonds were originally issued by English companies to reimburse their promoters, and are similar to bonus bonds. In a few issues the meaning is quite distinctly different from the more common use of the term. This is when the issue is made to pay the original holder or owners for the property purchased from them by a corporation.

Funding Bonds.—Funding bonds are issued for the purpose of issuing, in the form of a permanent debt, an outstanding floating debt, which may consist of several issues. The practice in funding floating debts is to await the advantage of a favorable market. Both municipalities and private corporations make use of these issues.

Funding and Real Estate Mortgage Bonds ().*—A corporation, in the issuance of these bonds, has usually selected a small part of its real estate and made it a first lien for a portion of the issue while a part of the issue is generally used in funding other obligations. While the first lien is not necessary to the issue it is practically always used because of the higher price realized.

Gas Company Bonds ().*—(See Chapter on Gas Bonds.)

General and First Mortgage Bonds.—(See General First Mortgage Bonds.)

General First Mortgage Bonds.—This bond is merely a general mortgage bond; its lien depending on mortgages already outstanding. First has no significance. If the qualifying word "and" is found between General and First, the mortgage will usually have a first claim on a small part of the property.

General Mortgage Bonds.—The lien of these bonds is a general claim upon all the property of a corporation subject to the lien of previous issues, which may vary from a first claim to the more remote junior liens. This type of bond has almost entirely replaced the blanket mortgage bond, which is similar. This bond is chiefly used by railroads.

Gold Bonds.—Bonds payable in United States gold coin of the standard

weight and fineness of the existing standard can be classed as gold bonds.

Guaranteed Bonds.—Any bond which is guaranteed by another corporation, individual, etc., is a guaranteed bond. This guarantee may be only on the principal, or the interest, or both. If the guarantee is made soon after the issue, an indorsement, together with the guarantee, is made on the guaranteed bond by the proper official of the guaranteeing company. The confusion that exists between the assumed and the guaranteed bonds, which are often taken as one and the same, calls for special comment. When one company has been taken over by another company, the obligations are assumed, the same as the property. If the company is absorbed, the mortgages of the company taken over become as much a part of the obligations of the company assuming them, as if they were obligations that had been issued directly by the company itself. All bonds assumed follow the order of their lien at the time they are assumed. Where one company has, for example, leased the properties of another company, it may guarantee the principal or interest, or both. The value of the guaranteed security depends upon: (1) the validity and terms of the contract; (2) the value of the lease to the lessor; (3) the ability of the guaranteeing company to pay and the earning power of either company as an independent enterprise; and (4) the duration of the guarantee.

The majority of these guarantees are of older issues and many of them were not well framed. In a number of contracts, where the lease proved to be a losing proposition, these loose contracts permitted the corporation to overthrow its contract. Others have never been legally tested. Guaranteed common stocks, being much more numerous and more speculative, have had more unfortunate experiences than guaranteed bonds.

A number of years ago guaranteed securities were in much demand. In recent years, the prices of many of these securities, especially stocks, have fallen as compared to other stocks and in comparison with their former high price. Certain guaranteed stocks probably offer one of the best illustrations, outside of Federal government bonds, of the influence of an artificial market. A study of guaranteed bonds leads to the same conclusion, except that the range in prices has been within narrower limits.¹

Improvement Bonds ().*—These bonds are usually a charge against the property which the improvements abut. In a few states, they are direct municipal obligations; in others, the city is responsible for them, if the payment of the bonds is defaulted by the abutting property owners. This, as far as the investor is concerned, makes them a direct obligation of the city. All bond issues for improvements for streets, pavements, sewers, etc., would be classed under improvement bonds.

¹Unpublished lectures of Spencer Trask & Co., New York.

Income Bonds.—(See Debenture Income Bonds, which is the complete title for Income Bonds.) These bonds may have a specific lien, though not necessarily so; but the interest payments are qualified by the requirement "when earned," *i. e.*, can only be paid when earned—a point which is determined by the directors. The interest may be cumulative or non-cumulative. If cumulative, the interest payments not met in a particular year continue as a charge against the company. The variation in the interest payments on income bonds necessitates a careful examination of these regulations.

The preference income bonds are given certain rights over other issues, and in non-payment of either interest or principal, or both, they are sometimes given mortgage rights.

Indorsed Bonds.—Coupon bonds, which are payable to bearer, and have an indorsement upon them which does not pertain to the security, must be sold by a member of the New York Stock Exchange if sold through the Exchange as indorsed bonds, in order to be a good delivery. Bonds of one corporation which are indorsed by another, as a guarantee of payment, are also called indorsed bonds.

Industrial Bonds (*).—(See Chapter on Industrial Bonds.)

Installment Bonds.—These bonds are retired by installment on certain interest dates. Customarily these amounts are equally distributed over the life of the bonds. (See Serial Bonds.)

Intercepting Sewer or Improvement Bonds.—When a part of the expense for a sewer system or other improvement is charged against the abutting property, and the other against the municipality, the bonds issued by the latter are known as an intercepting bond issue. (A Sewer Trunk issue is a bond issue providing for the main sewer line with which the individual street sewers connect.)

Interim Certificates.—These certificates are temporary certificates issued to the purchaser of a security by the corporation, though more frequently by a trust company, until the permanent certificates can be issued. This fact is stamped upon the certificates (may be printed or typewritten).

Interchangeable Bonds.—When the privilege is extended to the holder of coupon bonds to exchange them for registered bonds, or vice versa, they are called interchangeable bonds. When a coupon bond has been exchanged for a registered bond, it is not uncommon to restrict any further exchanges. (See chap. viii.)

Interurban Railway Bonds (*).—(See Chapter on Street Railway and Interurban Bonds.)

Irredeemable Bonds.—Very few of these bonds have been issued in the United States. Great Britain in the past marketed a number of these securities.

Irrigation Bonds (*).—(See Chapter on Irrigation Bonds.)

Joint Bonds.—These bonds are joint obligations of two or more different corporations, though they are most commonly secured by the same property. When collateral securities are deposited as security, these bonds are correctly termed joint collateral trust bonds, though frequently the name is abbreviated to collateral trust bonds. These must not be confused with the bonds issued by one company and later guaranteed by two or more companies. The latter are indorsed bonds.

Joint Collateral Trust Bonds.—(See Joint Bonds.)

Joint Mortgages.—(See Joint Bonds.)

Judgment Bonds.—These bonds are issued to meet an obligation which has been adjudged as valid by the court.

Junior Mortgages.—These are mortgages over which another mortgage or mortgages have priority.

Land Grant Bonds.—These bonds are secured by land granted to the corporation by the government. A sinking fund for the retirement of these bonds was practically always accumulated out of the sale of these lands. They were issued by the railroads in the early days of railroad construction. Canadian railroads have made use of this bond in recent years.

Land Grant Certificates.—(See Land Grant Bonds.)

Leasehold Mortgage Bonds (*).—In Chicago, where this bond has had its greatest development, the bond issue is made upon the building and the leasehold right. The latter is usually made for 99 years.

Legal Tender Bonds.—All bonds which are designated as payable in legal tender of the country may be called legal tender bonds.

Levee Bonds (*).—These bonds are in the general class of irrigation and drainage bonds, which are usually issued by a specially created municipal district, for the purpose of protecting an area against overflow waters.

Mining Bonds.—These bonds are issued on mining properties. There are very few bonds issued on strictly mining properties; smelting plants and other properties are usually included under the lien, a fact which makes them, partially at least, largely industrial issues.

Mortgage Bonds (*).—These bonds constitute "a promise to pay in the form of bonds and are secured by a mortgage on property."

Mortgage-Collateral Trust Bonds.—(See Collateral Trust Bonds.)

Mortgage Debentures.—(See Debenture Bonds.)

Mortgage Income Bonds.—Income bonds are those bonds whose principal has a specific claim against assets (the priority of the claim must be ascertained from the instrument). These bonds are often designated as to their order of issue by "First," etc.

Municipal Mortgage Bonds (*).—In a few of these bond issues a specific lien is given by a municipality upon revenue producing property.

The distinction is not important, however, as the payment of the bond and its interest is dependent upon the same sources as are general municipal bonds.

National Bonds (*).—(See Chapter on Government Bonds.)

Notes.—Notes, like certificates of indebtedness, differ from ordinary promissory notes only in their more formal character. They are assumed by corporations desiring funds for shorter periods than the normal duration of the bond issues, or the corporation makes the temporary note issues for the purpose of awaiting a more propitious market for a long time bond issue. Railroads have made frequent use of notes under the latter conditions. They are most frequently secured by collateral, as this simplifies the creation of a new issue and gives them a better market.

Optional Bonds.—The corporation issuing these bonds has the right, at its own option, of paying the bonds off before the regular maturity date. The majority of these bonds are redeemable at option after a given date. They are then frequently called "Optional After."

In a number of the real estate issues the holder of the bonds after a given date has the privilege of surrendering the bonds and receiving the amount of the principal paid in plus interest (usually 3%) for the period during which the corporation has had the use of these funds.

Overlying Mortgages.—A mortgage over which one or more mortgages may have precedence is termed an overlying mortgage.

Participating Bonds.—A minimum interest rate is usually fixed on these bonds and the bonds then participate in the earnings. The amount of this participation may be unlimited or fixed.

Paving Bonds.—(See Improvement and Special Assessment Bonds.)

Perpetual Bonds.—Bonds which have no maturity of the principal are termed perpetual bonds. Except for a few old issues they are not found in this country. They are no longer considered a desirable type of issue because being at an indefinitely fixed rate makes them inadaptable to long time changing markets.

Plain Bonds.—Plain bonds are theoretically bonds without a specific lien. (Where the title is correctly used, they are the same as Debenture Bonds.)

Preference Income Bonds.—(See Income Bonds.)

Preference Income Bonds, or Preference Bonds.—The title of these bonds is used interchangeably with the term income bonds. When there is a desire to differentiate several series as to the priority of their claims, this title is often used.

Preferential Bonds.—(See Prior Lien Bonds.)

Premium Bonds.—Bonds of municipalities and corporations are occa-

sionally retired at a premium. When bonds are made callable, it is also a common practice to retire them at a premium.

Prior Lien Bonds.—Strictly used, this title should indicate a prior claim over all other issues outstanding against a property. The title, however, is so frequently used to indicate priority over certain specified issues that it is no longer dependable. An examination of the exact lien of each issue is necessary.

Profit Sharing Bonds.—(See Participating Bonds.)

Purchase Line Mortgages.—When a railroad corporation purchases additional mileage it frequently will issue bonds secured by this line for the purpose of providing money for the purchase of the property. The only security that the holder of these bonds has is the line purchased. The issuing corporation has no obligation unless it guarantees the issue, or additional security is offered. This necessitates the examination of the status of the purchased line. This method of financing is employed where restrictions exist which prevent the purchasing company from issuing bonds or securities on the purchased lines, or the "after acquired clause" of the mortgage" prevents further indebtedness.

Purchase Money Bonds.—The only distinction between these bonds and the "Purchase Line Mortgages" is that they may be issued on any property purchased by a corporation, such as a manufacturing plant. These bonds are also used in exchange for the stocks of another corporation of which it desires to secure control or they may be issued to an individual owner for property.

Railroad Aid Bonds.—These bonds were issued by minor civil divisions of the state, and in a few still earlier cases by states, to assist in the building of railroads within their territory. The issuance of these bonds is chiefly confined to the period of early railroad development. A number of issues were also made to assist private enterprises during the same period, but they fell into even worse disrepute than the railroad aid issues. The great number of early repudiations due to their illegal issuance has left these bonds in very bad repute and they are still a very questionable form of investment.

Railroad Bonds ().*—(See Chapters on Railway Securities.)

Railway Trust Bonds ().*—These bonds must not be confused with the "Equipment Trust Bonds" which are an entirely different form of issue. The Railway Trust bond is only a particular kind of "Collateral Trust Bonds."

Real Estate Bonds ().*—(See Real Estate Mortgage Bonds).

Real Estate Mortgage Bonds ().*—Any bond secured by a lien upon real estate would be classed as a "Real Estate Mortgage Bond." The title is loosely used and the student is referred to the more complete

discussion of this subject of classification in chapters on "Real Estate Securities."

Receiver's Certificates.—When a corporation passes into receivership the court takes charge of its operation. During this period of operation any form of a term obligation to secure funds is issued by authority of the court as "Receivers' Certificates." These securities have precedence over all other obligations, except wages and current operating expenses. In the final settlement and reorganization of the corporation, their claims must be paid in cash, or satisfactory exchange be made in new securities. Receivers' certificates are usually issued only for current operation and for the more essential permanent expenses necessary for public welfare in the operation of the property. Receivers' certificates which are also a general claim against assets are an exception to these general statements of debentures. As they are issued by the court, in order to continue the operation of the property for the public welfare or interest, they of necessity must be given this priority by law. Current expenses and wages, alone, have precedence. If they are not paid at the end of the receivership, they must be satisfactorily adjusted in reorganization.

Reclamation Bonds (*).—Reclamation bonds are issued for the purpose of redeeming waste or overflowed lands. (Drainage, Irrigation and Levee Bonds.)

Redeemable Bonds.—(See also Callable Bonds.) In the redeemable feature of bonds, the interests of the investor desiring long time holdings and the interests of the corporation are opposed. To the corporation, it is a decided advantage to be able to recall any outstanding obligation, when there is an opportunity of refunding it at a lower rate. To the investor who desires to be relieved from care, the continued possibility of retirement at unexpected periods is a disadvantage; and furthermore the security is the more desirable to him, if the corporation becomes strong enough to recall it. To the holder desiring the speculative opportunity together with the investment privileges, the position is reversed when the bonds are callable at a premium. Where the securities of a company are in a strong investment position, especially, if the callable privilege is likely to be exercised by the payer, the price of the securities will go to a premium and they can be sold in the open market. Securities with exceptional investment strength have not infrequently for a short period gone above the premium price on their own investment basis. This premium, it is argued by some, is more than an offsetting compensation for the disadvantage of retirement.

Redemption Bonds.—(See Refunding Bonds.)

Refunding Bonds.—Refunding bonds, as their name implies, are issues used to retire or replace outstanding bonds. At present there are few refunding bond issues which do not make provision for additional funds under the same authorization when needed. A clause is usually inserted

in the mortgage which provides that if any additional bonds are sold under this refunding issue for extensions or purchases, a given ratio of the cost of construction of the new extension made, to the amount of the issue sold must be maintained, and the interest charges earned a given number of times. Refunding issues have consequently come to mean not only a continuation of an old debt, but an increase of the funded debt. Where the latter is warranted, it greatly simplifies the floating of the new securities and protects the interests of both the corporation and the investor.

To replace an issue which a corporation has used with profit and safety to itself is an advantage to the corporation, as well as, to the holder of the original bonds. If, however, it is the renewal of a loan of an overbonded corporation which is merely warding off the evil day, the issue should not be made. If the corporation under the latter condition can be saved, some other method of financing or reorganization is necessary; if not, immediate receivership is usually the cheapest way out. Also a refunding privilege may enable the corporation to make an effectual reduction in its interest rates. This, of course, is an advantage to the corporation and not to the creditor in his investment yield, though it does strengthen the investment security through strengthening the credit of the corporation.

While the issuance of a refunding bond does not mean the final cancellation of a debt by a corporation it does permit the exchange of the existing debt for a new form of indebtedness. The refunding issues, as a consequence, are commanding universal attention, as they more or less involve the problems of all liens, both in the replacing of old issues and the placing of new funded debt on corporation property. Strictly used, a refunding bond would merely be employed to replace old issues. In these days, however, few refunding bonds are issued that do not make further provision for future funds to be secured under the same issue, when needed. This is done by placing (in the mortgage) a clause providing as stated above that, if any additional bonds are sold for extensions, or purchases, a given ratio of the cost of construction of the new extension to the amount of the issues must be maintained, and that the interest charges must be earned a given number of times.

A refunding issue, then, means not only the continuation of a debt, but usually an increase of the funded debt. The effect of these issues upon the credit of the corporation and upon the value of the securities always needs to be carefully scrutinized. If the issuance merely prolongs the evil of an existing heavy obligation, there is no argument in its favor. On the other hand for a corporation to pay off its bond issues just as it is becoming strongly established would be equally objectionable. And lastly, a corporation may be able to make an effectual reduction in its interest rates, if the privilege of refunding is had.

In civil loans, with the exception of national loans, the arguments

for refunding bonds do not apply, as the civil division has no means of making profits from earnings as a corporation. On the other hand the burden of taxation in the payment of interest under a continuous refunding of an existing issue, is simply prolonging the obligation and forcing the public to pay more interest charges.

Refunding First Mortgage Bonds (*).—Refunding issues are those which are used to retire a first mortgage bond issue. One may not, however, be the first refunding issue made by the corporation.

Registered Bonds (*).—When the name of the owner of the bonds appears on the face of the bond, it is a registered bond, and cannot be transferred without being indorsed by the payee and sent to the transfer office of the corporation or municipality. A new bond is then issued to the new owner in his name by the transfer office of the corporation.

The line indicated on the bond for the name of the transferee may be left in blank and the bond may pass through several hands. Any person holding the bond who desires to do so may then fill in his name and forward it to the transfer office. As the interest checks are mailed to the person in whose name the bond appears in the company's book, it is to the advantage of the holder to have his bond transferred in time to receive his interest payment.

Registered Coupon Bonds (*).—When bonds are registered as to principal alone, and the attached interest coupons are not, they are registered coupon bonds, and the coupons are payable to the bearer.

Renewal Bonds.—(See Extension Bonds.)

Residuary Estate Bonds.—When a person (not a corporation) has legal claim to property, etc., which the purchaser should make certain has been probated, and this property is clear of any other legal claims, the claimant can issue bonds against it. The right of claim is conveyed by the proper legal instrument which occupies the same relation to its bonds as does the collateral of collateral trust bonds. The equity demanded by the purchaser should be sufficient to cover the longest possible life of the person mortgaging his future claims. The purchaser is protected in this by the purchase of an annuity which returns his money to him if the testator dies before the maturity of the obligation.

Revenue Bonds or Notes.—When a municipal corporation has need of temporary funds to meet current obligations, revenue securities are frequently issued. Revenue securities, however, are temporary loans only, and are retired within a few weeks or months. As these securities are short-termed, they are usually issued as notes.

Road Bonds.—Road bonds which were formerly issued principally by the county or special assessment district, are now being increasingly assumed by the state. (See also Improvement Bonds.)

Sanitary District Bonds.—These bonds are issued by civil districts

organized under state laws, for the purpose of providing sanitation, or pure water, or both.

School District Bonds (*).—In some parts of the country, especially the Middle West, the state is geographically divided into school districts. These units commonly correspond to the city or town in metropolitan areas, and to the township, or county, in the rural areas where schools are provided. In some states these units are created as special assessment districts; in others, the law makes special provision for the creation of these districts over specified areas where schools are needed. These districts have the authority to issue bonds which are called school bonds.

Second Consolidated Mortgage Bonds.—These bonds are issued upon the same security as consolidated (sometimes called first consolidated) bonds, but subsequent to the claims of the first consolidated or consolidated bonds. (See Consolidated Bonds.)

Second Mortgage Bonds.—Bonds secured by second mortgages are subsequent to first mortgages, which have prior claims on the corporation for the payment of interest and principal and also a prior lien upon the property.

Secured Notes.—These notes are the same as collateral notes, *i. e.*, they are secured by other stocks or bonds or by both stocks and bonds.

Serial Bonds (*).—The principal of these bonds is paid in installments. This method of paying a bond by the issuer may be attached to a bond of any form of a lien.

Sewer Bonds.—Sewer bonds are improvement bonds, issued by a municipality for the construction of sewers. They are issued either as direct obligations of the municipality, or as special assessments securities.

Silver Bonds.—Silver bonds are bonds which are payable in silver currency. These bonds are practically unknown in the United States, except for a very few old issues.

Sinking Fund Bonds (*).—All bonds may have the sinking fund provision feature as a part of the provision regulating the issue. These provisions require the setting aside of stated sums at regular intervals for the payment of all, or a part of the obligation.

The fund set aside for this purpose may be used to purchase the securities of the debt itself; the securities to be purchased may be drawn by lot which is a very objectionable practice. Serial numbers may be placed upon the bonds, and the specific date of retirement then will be known, or the bonds may be purchased in the open market. With any good investment bond, if a corporation were forced to buy all of its own bonds on the open market, it might be forced to pay an exorbitant premium. The experience of the British in the forced purchase for the sinking fund of Consol 2's and the sharp upturn of the price during the nineties, is a good example of this. The other method of handling the fund is to retain it until maturity. Some mortgages

provide for the purchase of other securities. Lastly, a fund may be deposited with a trustee. When no provision is made for the purchase of securities, corporations have followed the practice, after setting aside the fund out of earnings, of placing it back in the properties. In strong companies this gives added equity and strength. In weak corporations it is a dangerous procedure for the interests of the investor.

Senior Mortgage.—These mortgages have precedence over some other mortgage or mortgages. The term is frequently used as meaning first mortgage, but a senior mortgage is not necessarily a first mortgage.

Sinking Fund Mortgages (*).—(See Sinking Fund Bonds.)

Special Assessment Bonds (*).—These bonds are issued by special civil districts created for the special purpose of financing such improvements as street paving, sewers, etc., for the particular area organized as the special district. The city as a whole within which the district is situated is not obligated for the payment of these obligations, except where so designated.

Stamped Bonds.—All bonds which have had stamped on them some new condition which is added after their original issue, are called stamped bonds.

State Bonds (*).—(See Chapters on Civil Loans.)

Steamship Bonds (*).—(See Chapter on Great Lake Steamship Bonds.)

Stock Interest Certificates.—(See Stock Trust Certificates.)

Stock Trust Certificates.—These certificates are usually issued to represent the stock certificates of holders of stock in a corporation, the stock certificates themselves being deposited with a trustee. The trust certificates are usually given the full power possessed by the stock by agreement on the part of the stockholders. Consequently the stock trust certificates merely represent the ownership of the holders of a given number of shares of stock.

Street Bonds (*).—(See Improvement Bonds.)

Street Railway Bonds (*).—(See Chapters on Street Railway Bonds.)

Subsidy Bonds.—(See Railroad Aid Bonds.)

Tax Arrearage Bonds.—(See Revenue Bonds.)

Tax Relief Bonds.—(See Revenue Bonds or Notes.)

Telephone and Telegraph Bonds (*).—(See Chapters on Telephone and Telegraph Bonds.)

Temporary Bonds or Certificates or Temporary Receipts.—When the issuing corporation or civil district desires to secure the money from the sale of its securities, before the securities themselves are ready for delivery, temporary certificates or receipts are issued, which are later exchanged for the permanent securities. In the past, abuse was occasionally made by corporations which were organized for the promotional profits.

Terminal Company Bonds.—These securities are issued by railroad terminal companies and are secured by terminal properties, such as stations, yards, and terminal tracks. The terminal company is usually owned by a group of railroads. The bond issues may also have the additional guarantee of the several railroads using the terminal.

Territorial Bonds.—Territorial bonds are those issued by territories not yet admitted to statehood in the union. Some of the bonds of former territories now admitted as states are still outstanding, as the issues have not yet matured.

Third Consolidated Mortgages.—Third consolidated issues. (See Consolidated Mortgages.)

Third Mortgage Bonds.—Bonds which have two bond issues preceding them in right of priority to their lien can be classed as third mortgages.

Timber Bonds (*).—(See Chapter on Timber Bonds.)

Town Warrants.—(See Certificates of Indebtedness.)

Township Bonds (*).—(See Chapters on Civil Loans.)

Trust Certificates.—(See Stock Trust Certificates.)

Underlying Mortgages.—Bonds which have precedence over some other bond or bonds are termed underlying issues. Though they are usually considered first mortgages, they are not necessarily so. This must be determined from the mortgage instrument.

Unifying Bonds.—(See Consolidated Bonds.)

Unifying Mortgage Bonds.—(See Consolidated Bonds.) First and Unifying Mortgage Bonds (See First and Consolidated Mortgage Bonds).

First Unifying Mortgage Bonds.—(See First Consolidated Mortgage Bonds.)

United States—Treasury Certificates.—(See Chapter of Government Bonds.)

Water Bonds (*).—(See Chapter on Private Water Company Bonds.)

Water Company Bonds (*).—(See Chapter on Private Water Company Bonds.)

Water Power Company Bonds (*).—(See Chapter Hydro-Electric Securities.)

Wharf and Dock Bonds.—These bonds may be issued by either a private corporation or municipality, for the purpose of constructing wharves. Where several railroad or steamship lines are using the same wharves, a separate company is usually organized.

APPENDIX B

U. S. LIBERTY AND VICTORY LOAN WAR BONDS¹ Principal Characteristic Differences of the Ten Issues Now Authorized and Outstanding

	3½s	4s	
	1st LIBERTY LOAN 3½s 15-30 YEAR BONDS	1st LIBERTY LOAN— CONVERTED 4s 15-30 YEAR BONDS	2nd LIBERTY LOAN 4s 10-25 YEAR BONDS
Present Status	Issued \$1,989,455,550. *Outstanding \$1,410,074,400.	*Outstanding \$65,803,050.	Issued \$3,807,865,000. *Outstanding \$240,003,250.
Taxation Feature Summary Below	Exempt from all taxes (except estate and inheritance taxes).	Notes A, B, F and G.	Notes A, B, F and G.
Date of Issue and Maturity	June 15, 1917. June 15, 1947.	November 15, 1917. June 15, 1947.	November 15, 1917. November 15, 1942.
Callable for Payment	Redeemable at government's option on or after June 15, 1932.	Redeemable at government's option on or after June 15, 1932.	Redeemable at government's option on or after Nov. 15, 1927.
Interest Payments	June 15th and Dec. 15th.	June 15th and Dec. 15th.	May 15th and Nov. 15th.
Conversion Privilege	Convertible into any higher rate bond issued during the war (except short term loans) within six months from date of the issue of such higher rate bond. The date of the termination of the war shall be date fixed by proclamation of the President.	Convertible into the First Converted 4½s if application is made before Nov. 9, 1918. This privilege to convert has been extended and renewed, subject to termination on six months' notice by the Secretary of the Treasury.	Convertible into Second Converted 4½s if application is made before Nov. 9, 1918. This privilege to convert has been extended and renewed, subject to termination on six months' notice by the Secretary of Treasury.
Sinking Fund	Note H.	Notes E and H.	Notes E and H.

¹C. F. Childs & Company, specialists in all government bonds; New York, 120 Broadway; Chicago, 208 S. La Salle St.
(Continued on next page)

U. S. LIBERTY AND VICTORY LOAN WAR BONDS (Continued)

4 1/4s

1ST LIBERTY LOAN— CONVERTED 4 1/4s ISSUE OF MAY 9, 1918 15-30 YEAR BONDS	1ST LIBERTY LOAN— SECOND CONVERTED 4 1/4s ISSUE OF OCT. 24, 1918 15-30 YEAR BONDS	2ND LIBERTY LOAN— CONVERTED 4 1/4s 10-25 YEAR BONDS	3RD LIBERTY LOAN 4 1/4s 10 YEAR BONDS	4TH LIBERTY LOAN 4 1/4s 15-20 YEAR BONDS
*Outstanding \$473,089,200.	Available by converting 3 1/2s before April 24, 1919. Outstanding \$3,492,150.	*Outstanding \$3,085,303,750.	Issued \$4,175,650,050. *Outstanding \$3,662,715,800.	Issued \$6,964,576,000. *Outstanding \$6,394,354,500.
Notes A, B, C, F and G. May 9, 1918. June 15, 1947.	Notes A, C, D, F and G. October 24, 1918. June 15, 1947.	Notes A, B, C, F and G. May 9, 1918. November 15, 1942.	Notes A, B, C, F and G. May 9, 1918. September 15, 1928.	Notes A, C, D, F and G. October 24, 1918. October 15, 1938.
Redeemable at govern- ment's option on or after June 15, 1932.	Redeemable at govern- ment's option on or after June 15, 1932.	Redeemable at govern- ment's option on or after Nov. 15, 1927.	Not redeemable until maturity.	Redeemable at govern- ment's option on or after Oct. 15, 1933.
June 15 and Dec. 15.	June 15 and Dec. 15.	May 15 and Nov. 15.	Sept. 15 and Mar. 15.	April 15 and Oct. 15.
Not convertible into any future issue.	Not convertible into any future issue.	Not convertible into any future issue.	Not convertible into any future issue.	Not convertible into any future issue.
Notes E and H.	Notes E and H.	Notes E and H.	Notes E and H.	Notes E and H.

(Continued on next page)

U. S. LIBERTY AND VICTORY LOAN WAR BONDS (Continued)

700

INVESTMENT ANALYSIS

3 $\frac{3}{4}$ s and 4 $\frac{3}{4}$ s					
VICTORY LIBERTY LOAN 3-4 YEAR NOTES					
Issued \$4,495,371,850. *Outstanding 3 $\frac{3}{4}$ s=\$ 818,395,650. *Outstanding 4 $\frac{3}{4}$ s=\$3,427,969,700.					
Notes I and J. Note C. as to 4 $\frac{3}{4}$ s only.					
May 20, 1919. May 20, 1923.					
Redeemable at government's option on or after June 15, 1922, upon not less than four months' notice.					
December 15th and June 15th.					
The 3 $\frac{3}{4}$ s and 4 $\frac{3}{4}$ s are interconvertible, each into the other after July 15, 1919, but before maturity or call for redemption.					
Notes E and H.					

NOTE A

Exempt from state and local taxes and from normal income tax, but subject to estate, inheritance, super-tax, excess and war profits tax on all incomes and earnings above the normal exemption (incomes from holdings of \$5,000 bonds are tax exempt except for estate and inheritance taxes).

NOTE D

In addition to the tax exemption in Note A, interest on notes to exceed \$50,000 bonds of this issue is exempt until two years after the war from surtaxes, excess and war-profits taxes when owned by one individual, partnership, corporation or association.

NOTE G

In addition to the tax exemption in Note F, income received on and after January 1, 1919, on notes to exceed \$20,000 bonds in the aggregate is exempt from surtaxes, excess and war-profits taxes, extending through the life of the Victory Notes, provided such bonds do not exceed three times the principal amount of Notes of the Victory Liberty Loan originally subscribed for by such owner and still held by him at the date of his tax return.

NOTE B

In addition to tax exemption in Note A, income from not more than \$45,000 bonds of this issue or a smaller amount of bonds of this issue not exceeding 1% times the amount of the Fourth Liberty Bonds held by the owner is exempt until two years after the war from surtaxes, excess and war-profits taxes, provided said Fourth Loan Bonds were originally subscribed for and have been continuously owned by the tax payer up to the date of his tax return.

NOTE E

The Secretary of the Treasury is authorized from time to time until the expiration of one year after the termination of the war to buy bonds of this issue to the extent of 5% of the original issue during the 12 months' period beginning on the date of issue and to each 12 months' period thereafter to the extent of 5% of the amount outstanding at the beginning of the period, the average cost of bonds purchased in any such 12 months' period not to exceed par and accrued interest.

NOTE H

The Victory Loan Act created a sinking fund to retire all Liberty Bonds and notes issues at maturity, or to redeem and purchase them before maturity at an average cost not to exceed 100 and accrued interest. Beginning July 1st, 1920, and for each fiscal year thereafter until all such bonds and notes are redeemed, there is appropriated for the purposes of the sinking fund an amount equal to the sum of (1) 2 $\frac{1}{2}$ % of the aggregate amount of bonds and notes outstanding on July 1st, 1920, less an amount equal to the par amount of any obligations of foreign governments held by the United States on July 1st, 1920, and (2) the interest which would have been payable on the bonds and notes purchased or redeemed or paid out of the sinking fund during such year or in previous years for which the appropriation was made.

NOTE C

Bonds owned continuously for at least six months prior to one's death are acceptable at par and accrued interest in payment of any estate and inheritance taxes imposed by the United States under any present or future law.

NOTE F

In addition to the tax exemption in Note A, income received on and after January 1, 1919, on notes to exceed \$30,000 bonds in the aggregate is exempt until the expiration of five years after the war from surtaxes, excess and war profit taxes.

(Continued on next page)

U. S. LIBERTY AND VICTORY LOAN WAR BONDS

SUMMARY

The possible limit of income tax exemption on LIBERTY LOANS, exclusive of holdings of $3\frac{1}{2}$ s and $3\frac{3}{4}$ s, may consist of:

\$ 5,000 in the aggregate of First 4s, First $4\frac{1}{4}$ s, First Second $4\frac{1}{4}$ s, Second 4s and $4\frac{1}{4}$ s, Third $4\frac{1}{4}$ s, Fourth $4\frac{1}{4}$ s, Treasury Certificates, and United States War-Savings Certificates.

30,000 of First Second $4\frac{1}{4}$ s, until the expiration of two years after the termination of the war, as fixed by proclamation of the President.

30,000 of Fourth $4\frac{1}{4}$ s, until the expiration of two years after the termination of the war.

30,000 in the aggregate of First 4s, First $4\frac{1}{4}$ s, First Second $4\frac{1}{4}$ s, Second 4s and $4\frac{1}{4}$ s, Third $4\frac{1}{4}$ s, and Fourth $4\frac{1}{4}$ s, as to the interest received on and after January 1, 1919, until the expiration of five years after the termination of the war.

45,000 in the aggregate of First 4s, First $4\frac{1}{4}$ s, Second 4s and $4\frac{1}{4}$ s, and Third $4\frac{1}{4}$ s, as to the interest received after January 1, 1918, until the expiration of two years after the termination of the war; this exemption conditional on original subscription to, and continued holding at the date of the tax return of, two-thirds as many bonds of the Fourth Liberty Loan.

20,000 in the aggregate of First 4s, First $4\frac{1}{4}$ s, First Second $4\frac{1}{4}$ s, Second 4s and $4\frac{1}{4}$ s, Third $4\frac{1}{4}$ s, and Fourth $4\frac{1}{4}$ s, as to the interest received on and after January 1, 1919; this exemption conditional upon original subscription to, and continued holding at the date of the tax return of, one-third as many notes of the Victory Liberty Loan, and extending through the life of such notes of the Victory Liberty Loan.

\$160,000 Total

Copyrighted Nov., 1920

VICTORY LOAN NOTES:

Note I.—The $3\frac{3}{4}$ s are exempt both as to principal and interest from all taxation (except estate and inheritance taxes) now or hereafter imposed by the United States, any State or any of the possessions of the United States, or by any local taxing authority.

Note J.—The $4\frac{3}{4}$ s are exempt both as to principal and interest from all taxation now or hereafter imposed by the United States, any State, or any of the possessions of the United States, or by any local taxing authority, except estate or inheritance taxes, and graduated additional income taxes, commonly known as surtaxes, and excess profits and war-profit taxes, now or hereafter imposed by the United States, upon the income or profits of individuals, partnerships, associations or corporations.

*OUTSTANDING JUNE 30, 1920

Otherwise, Above Data Revised to Nov. 1, 1920.

†The two issues of First Converted $4\frac{1}{4}$ s differ only to the extent that the issue of October 24th is tax exempt as to the interest on not to exceed \$30,000 bonds regardless of one's subscription to the Fourth Loan, whereas the issue of May 9th is tax exempt as to the interest on not to exceed \$45,000 bonds in connection with one's subscription to the Fourth Loan.

Note.—This table also appears in the Annals of the American Academy of Political and Social Science, vol. lxxxviii, March, 1920. The above tables are a revision of this same table by C. F. Childs.

APPENDIX C

AVERAGE OPERATING UNITS OF BELL TELEPHONE SYSTEM IN THE UNITED STATES (Includes American Telephone and Telegraph Company)

Average per Exchange Station:	1895	1905	1915	1916	1917
EARNINGS:					
Exchange Service	\$ 71.91	\$ 33.86	\$ 29.73	\$ 30.49	\$ 30.62
Toll Service	16.43	13.21	11.04	11.75	12.45
Total	88.34	47.07	40.77	42.24	43.07
EXPENSES:					
Operation	28.84	16.77	14.83	15.26	16.74
Taxes	2.87	1.70	2.30	2.44	3.12
Total	31.71	18.47	17.13	17.70	19.86
Balance	56.63	28.60	23.64	24.54	23.21
Maintenance and Depreciation	27.73	14.66	13.34	13.67	13.91
Net Earnings	28.90	13.94	10.30	10.87	9.30
Per Cent Operation Expense to Telephone Earnings	32.6	35.6	36.4	36.1	38.9
Per Cent Telephone Expense to Telephone Earnings	67.3	70.4	74.7	74.3	78.4
Per Cent Maintenance and Depreciation to Average Plant, Supplies, etc.	9.1	8.5	8.8	9.2	9.3
Per Cent Increase Exchange Stations ¹	15.7	24.5	6.9	9.7	7.4
Per Cent Increase Miles Exchange Wire ²	15.9	27.2	6.7	6.9	13.7
Per Cent Increase Miles Toll Wire	19.5	12.8	.0 ³	9.4	15.1
Average Plant Cost Per Exchange Station (Exchange and Toll Construction) ..	\$300.00	\$164.00	\$149.00	\$146.00	\$153.00
Average Cost Per Mile of Toll Wire (Including Poles and Conduits)	85.00	69.00	74.00	72.00	71.00
Per Cent Gross Telephone Earnings to Average Plant	28.4	27.5	27.2	29.2	29.9
Per Cent Total Net Earnings to Average Capital Obligations	13.12	8.87	8.24	9.12	8.03
Per Cent Total Net Earnings to Average Plant and Other Assets	7.70	7.23	6.37	6.70	5.86
Per Cent Paid Out on Average Capital Obligations	8.62	6.14	6.35	6.46	6.50
Per Cent Paid Out on Average Plant and Other Assets	5.06	5.00	4.91	4.74	4.74

¹Increase during year shown, over previous year.

²Small increase mainly due to increase in radius covered by exchange rates.

APPENDIX D

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